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CONDITIONAL CLIMATOLOGY OF Ap

The Relationship Between Solar Flares and Geomagnetic Storms

by

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13. Abstract: This report documents a study of USAFETAC's optical solar flare database and its relationship to Göttingen's planetary geomagnetic index (Ap). The study was based on solar flare data with an 11-year period of record (1975 to 1986--Solar Cycle 21). After solar flares and Ap indices were studied separately, more than 27,000 flare reports were merged with 3-hour Ap values for 7 days after each flare. The resultant dataset was analyzed with respect to certain flare characteristics (such as importance, brightness, duration, solar location, and phase of the solar cycle) to find the best predictor of geomagnetic storming. The results were summarized in contingency tables (provided in Appendix B) for use as solar forecasting aids. Some flares were found to have more of an influence on the Earth's geomagnetic field than others. Of all the features studied, a flare's importance and location on the disk seemed to be the best predictors of geomagnetic storming.

14. Subject Terms: CLIMATOLOGY, SOLAR FLARES, SOLAR DISTURBANCES, SUNSPOTS, SOLAR ACTIVITY, SOLAR ATMOSPHERE, SOLAR FORECASTING, GEOMAGNETIC STORM, Göttingen's planetary geomagnetic index (Ap).

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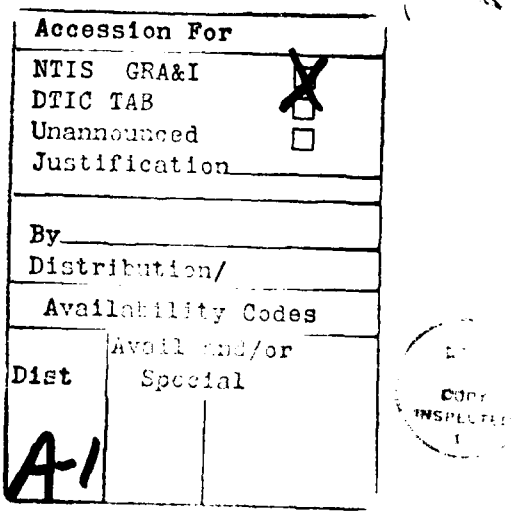

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PREFACE

This report was prepared under USAFETAC Project 80613 to satisfy a request by the Space Support Division of Air Force Global Weather Central (AFGWC/WSE). The customer asked for a study of the relationship between solar flares and geomagnetic disturbances (Ap). Before such a study could be accomplished, however, confidence in the quantity and quality of the solar flare and Ap databases had to be established.

Although a variety of different solar events cause fluctuations in the Earth's geomagnetic field, the event chosen for study in this report was the solar flare, an explosive release of energy on the Sun's surface. Flare reports were from USAFETAC's SESS Climatic Database. Of the many geomagnetic indices available, Göttingen's Ap (a planetary geomagnetic index derived from mid-latitude magnetometer stations) was chosen to describe geomagnetic storms. Although "Ap" and "ap" are used interchangeably throughout the report to describe geomagnetic disturbances in general, "big" Ap refers to the *daily* index, and "little" ap to the *3-hour* index. All the Ap data used here was from the National Geophysical Data Center (NGDC).

After optical solar flare reports and the Ap database were analyzed separately, the relationship between the two was studied. More than 27,000 flare reports were merged with 3-hour ap values for 7 days following each flare. The resultant dataset was analyzed with respect to a number of flare characteristics, including importance, brightness, duration, solar location, and phase of the solar cycle, to find the best predictors of geomagnetic storms. Flare importance and location on the solar disk seem to be the best indicators. All analyses were based on an 11-year period of record (1975 to 1986, Solar Cycle 21).

Chapter 1 describes the results of our solar flare analysis. Flare reports were analyzed with respect to a number of variables: flare incidence by year, month, and hour; size and brightness; position on the solar disk; and duration of the flare. Chapter 2 gives the results of our Ap analysis with respect to frequency of occurrence; monthly, seasonal, and yearly averages; and frequency of geomagnetic storms. Conditional climatology tables are provided. Chapter 3 explains the relationship between solar flares and Ap. Results are summarized and tabulated as conditional climatology tables in the Appendices.

The authors gratefully acknowledge the contributions of the following people: Capt John Miller and Mr Michael Squires (DNE) for their ideas and encourgement; Lt Col Frank Globokar (DN) for his constructive comments; SSgt Todd Lewellyn (ADL) and SSgt Paula Kendall (ADB) for their computer programming and database management expertise. Many thanks also to Capt Kurt Lutz of NGDC for his cooperation in providing the Ap data.

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Chapter 1

SOLAR FLARE ANALYSIS

1-1 INTRODUCTION. Solar flares are transient, localized releases of energy, usually occurring in and above an active region on the Sun (Altrock, 1985). They are observed with optical telescopes tuned to a wavelength of 6563Å (hydrogen-alpha spectral line). Our analysis of solar flare data for Solar Cycle 21 was performed using USAFETAC's SESS (Space Environmental Support System) Climatic Database (SCDB). This chapter is a survey of that database's quantity and quality, as well as a check of our analysis techniques. Observations from Air Weather Service (AWS) and other international solar observatories are included in the database. The data was analyzed with respect to certain variables that included: flare incidence by year, month and hour; size and brightness; position on solar disk; and flare duration.

1-2 THE SOLAR FLARE DATABASE. The study used solar flare data from November 1975 to December 1986. All months except April 1981 are represented. The 11-year period of record (POR) completely spans Solar Cycle 21 (June 1976 to September 1986). Since USAFETAC's SCDB offically dates back only to December 1981, much work was required to retrieve, organize, and understand a collection of older AFGWC data for the first half of Solar Cycle 21. The resulting database eventually contained more than 40,000 observations from 11 different solar observatories. Figure 1-1 shows the location of each of the 11 solar optical observatories that contributed to the database.

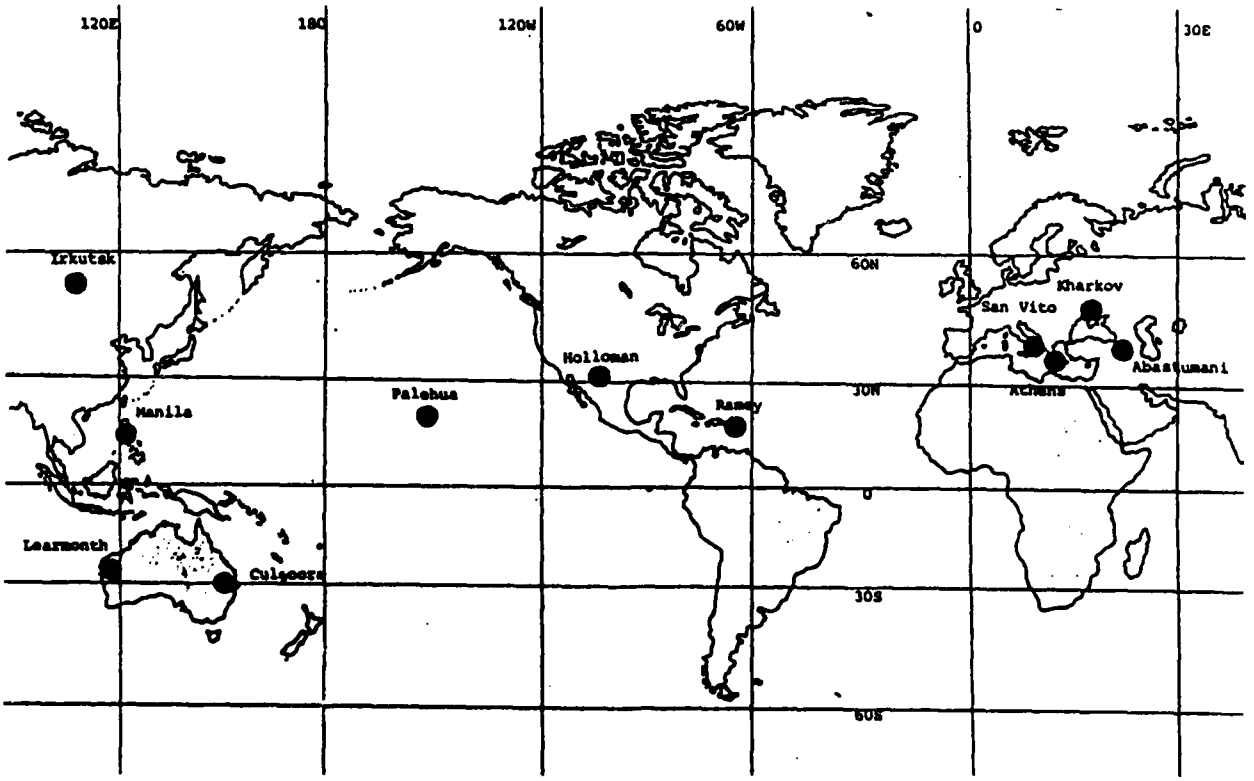
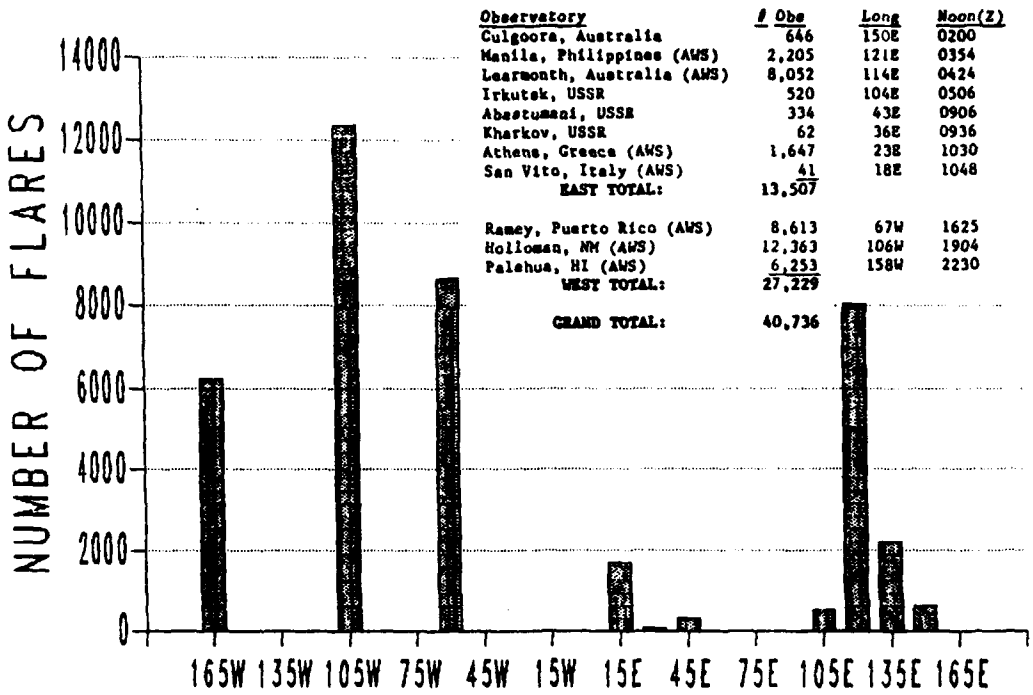


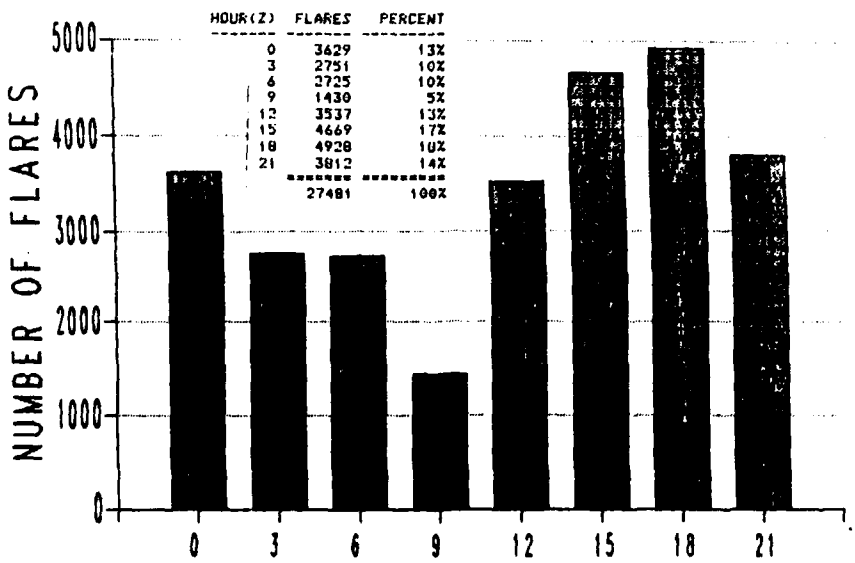
Figure 1-1. Location of optical observatories in the database for Solar Cycle 21.

Figure 1-2 shows the longitudinal distribution of the total number of flare reports from each observatory. Far more flares were reported by western hemisphere stations than by those in the eastern hemisphere, the probable result of the AWS observatories (most in the western hemisphere) that dominate the database. Observations from the AWS sites at Ramey, Holloman, and Palehua, for example, provided 67% of the total number of reports. Figure 1-3 gives the total number of "unique" (no dual reports) flares for each 3-hour period for the entire POR.



Observatory	# Obs	Long	Noon(Z)
Culgoora, Australia	646	150E	0200
Manila, Philippines (AWS)	2,205	121E	0354
Learmonth, Australia (AWS)	8,052	114E	0424
Irkutsk, USSR	520	104E	0506
Abastumani, USSR	334	43E	0906
Kharkov, USSR	62	36E	0936
Athens, Greece (AWS)	1,647	23E	1030
San Vito, Italy (AWS)	41	18E	1048
EAST TOTAL:	13,507		
Ramey, Puerto Rico (AWS)	8,613	67W	1625
Holloman, NM (AWS)	12,363	106W	1904
Palehua, HI (AWS)	6,253	158W	2230
WEST TOTAL:	27,229		
GRAND TOTAL:	40,736		

Figure 1-2. Longitudinal distribution of the number of observations from each solar site. Inset table gives name of observatory, number of reports, location, and time of local noon (Z). East and west subtotals are also shown.



HOUR(Z)	FLARES	PERCENT
0	3629	13%
3	2751	10%
6	2725	10%
9	1430	5%
12	3537	13%
15	4669	17%
18	4928	18%
21	3812	14%
	27481	100%

Figure 1-3. Diurnal distribution of unique (no dual) flare reports. Inset table shows hour (Z), number of flares, and percentage of the total.

The bias toward western stations can also be viewed from a time-of-day perspective. In Figure 1-3, note that 18Z has many more flare observations than 09Z. Assuming that each observatory can see the sun an average of 6 hours before and 6 hours after local noon, western observatories patrol the Sun from 00 to 05Z and from 10 to 00Z. Learmonth, the only eastern observatory with a large amount of data, can see the Sun from 22 to 10Z, and normally fills the gap left by the other western observatories. But whenever weather or equipment outage at Learmonth keeps it from operating, there is a patrolling void from 06 to 09Z. Figures 1-2 and 1-3, then, suggest that any diurnal fluctuation in solar flare reporting is not a solar characteristic, but a result of the skewed longitudinal distribution of solar observatories. Our initial analysis, therefore, led to the following conclusions:

- The unusually large number of flares clustered around18Z is a result of the fact that there are more reports from observatories in the west than from those in the east.

- The lack of observations from eastern hemisphere observatories suggests that some flares are not reported and therefore not included in the database. The hours most deficient in flare reports were those between 07 and 09Z.

1-3 DATA PROCESSING. The solar flare data was processed in three ways: (1) reports were grouped into customer-requested regional groupings, (2) new data fields (time, type, and duration) were calculated from the original data, and (3) a "best" observation was chosen from among multiple reports of the same flare.

1-3.1 Regional Grouping. To obtain the latitude and longitude of each flare, the observation's quadrant location, central meridian distance, and latitude were acquired from the database. As requested by the customer, flares were then grouped into 72 different regions, as shown by Figure 1-4. Flares observed in the Sun's polar area were assigned to regions numbered 1-12 (northern) and 61-72 (southern). Flares from solar mid-latitudes were assigned to regions numbered 13-24 (northern) and 49-60 (southern). Equatorial flares were grouped into regions numbered 25-36 (northern) and 37-48 (southern). Flares were also grouped according to their heliographic longitude, in 15-degree increments. With these conventions, active areas on the Sun rotate progressively across the disk from larger to smaller region numbers, or from left to right.

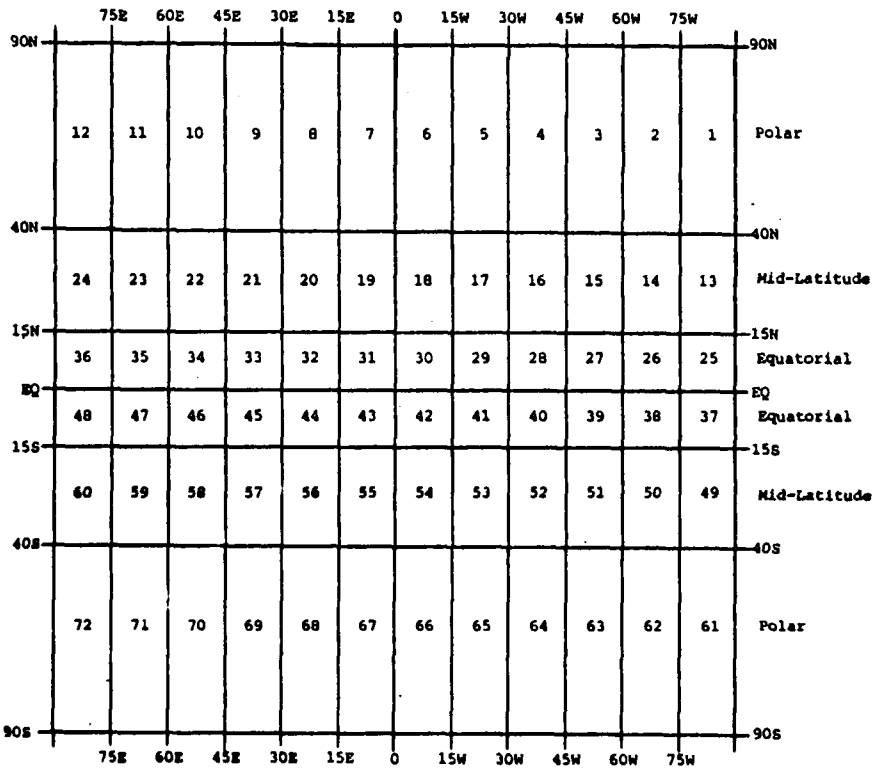


Figure 1-4. Numbering convention used to divide the solar disk into 72 regions.

1-3.2 Flare Time, Type, and Duration Groupings.

Flare Time Grouping. The hour of maximum brightness was used to group flare reports into the next lower 3-hour interval (00, 03, 06, 09, 12, 15, 18, 21Z). For example, if the hour of maximum brightness was 00, 01, or 02Z, the observation would be placed in the 00Z group. This grouping was chosen to coincide with the time interval used for planetary geomagnetic Ap data.

Flare Type Grouping. Combinations of *size (or importance)* and *brightness* characteristics were used to eventually group each flare report into one of 15 different categories, or "*flare types*," as shown below:

Size: "Size" is the area that a flare covers at its time of maximum brightness, measured and corrected for solar curvature. The corrected area is grouped into one of the four "importance" categories shown here (Townsend, 1982). The "corrected area" is given in "millionths of the solar disk."

Importance	*Corrected Area*
0 (subflare)	less than 200
1	200 to 499
2	500 to 1,199
3	1,200 to 2,400
4	greater than 2,400

Brightness: The "brightness" characteristic of a flare is based on the velocity of its emitting gas particles, as determined by measuring the Doppler shift of the hydrogen-alpha line. Flares are categorized into the three brightness groups shown below (Townsend, 1982):

F.....Faint

N.....Normal

B..... Brilliant

Flare Type: "Type" is finally determined through combinations of importance and brightness, as shown in the following table.

Flare Type Table

Importance	*Brightness*	*Flare Type*
0	F	0F
0	N	0N
0	B	0B
1	F	1F
1	N	1N
1	B	1B
2	F	2F
2	N	2N
2	B	2B
3	F	3F
3	N	3N
3	B	3B
4	F	4F
4	N	4N
4	B	4B

Calculating Flare Duration. The duration (in minutes) of each flare was calculated by subtracting the time the flare started from the time it ended.

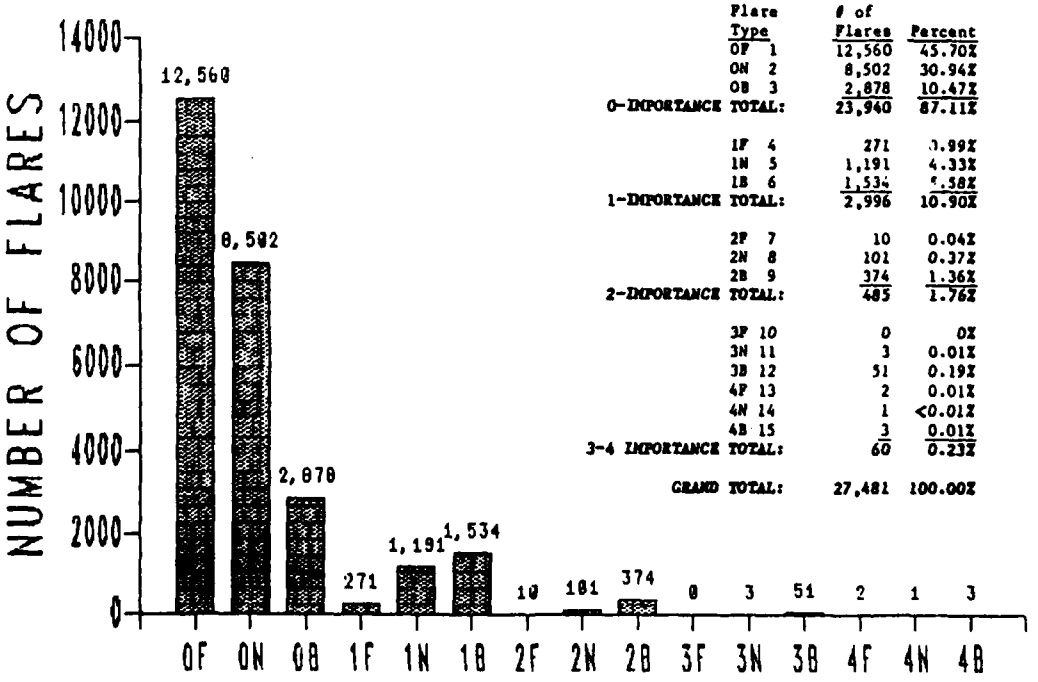
1-3.3 Determining the "Best" Report. Before any of the data could be analyzed, duplicate reports had to be eliminated. The difference between the total flare count shown in Figure 1-2 (40,736) and the "unique" flare count in Figure 1-3 (27,481) shows that multiple reports are common, with two main causes: two observatories report the same flare in slightly different ways, or an observatory sends two or three observations to correct errors in previous reports. Although choosing a "best" report from multiple observations of the same flare was difficult, it was made easier by developing a hierarchy of observational criteria. The checklist items chosen (each in descending order of importance) were:

- Status of report (corrected, final or preliminary).
- Quality of report (excellent to very poor).
- Method of observation (electronic, projection, photographic, or visual).
- Apparent corrected area (in millionths of solar disk).

For example, suppose two flare reports had the same date/time group, were of the same solar region, and had equal flare strengths; the "best" report would be determined by selecting a corrected report over a final or preliminary one. But if the two reports had the same status, then "quality" would be used to pick the best report--that is, an "excellent" report over a "poor" one. This procedure was repeated as often as necessary for each variable until a unique ("best") report was selected. The filtering process resulted in there being just one ("best") observation for each 3-hour date/time group, solar region, and flare strength. In actual practice, the procedure worked well; all duplicate reports were eliminated.

1-4 FLARE ANALYSIS. Solar flare data was analyzed according to *type, yearly and monthly totals, location of the flare on the solar disk,* and *duration.* As will be shown by the data in the following graphics, analysis of monthly flare reports leads to several generalizations. Regardless of type, the number of flares rose quickly in 1978, leveled off for 3 years, then reached a very high maximum in late 1980. A secondary maximum (lower than the first) was observed in mid-1982, near the beginning of a rapid decrease in solar activity. Plots of individual flare types have revealed similar monthly peaks, but very different relative values. These findings suggest that not only is there an 11-year flare cycle (based purely on the number of flares per month), but that there may be another flare cycle with a shorter period. Many more solar cycles must be analyzed, however, before we can be sure this is a predictable solar characteristic and not just a one-cycle peculiarity.

1-4.1 Flare Type. Figure 1-5 shows that more than 27,000 flares were observed during Solar Cycle 21, an average of nearly seven a day. Most flares (87%) were small, or 0-importance. Only six of the largest flares (importance 4) were reported. Figure 1-5 also shows that flares with importances of 1, 2, or 3 are heavily weighted toward the "bright" category. For example, only 3 of the 54 flares with an importance of "3" had brilliances of "normal," and none were reported as "faint." The remaining 51, however, were observed to be "bright." Therefore, larger flares tend to be more explosive than smaller subflares. Figure 1-6 (next page) compares analyses of previous solar cycles with our own. We were encouraged to note that Smith's yearly and total percentages were very close to ours.



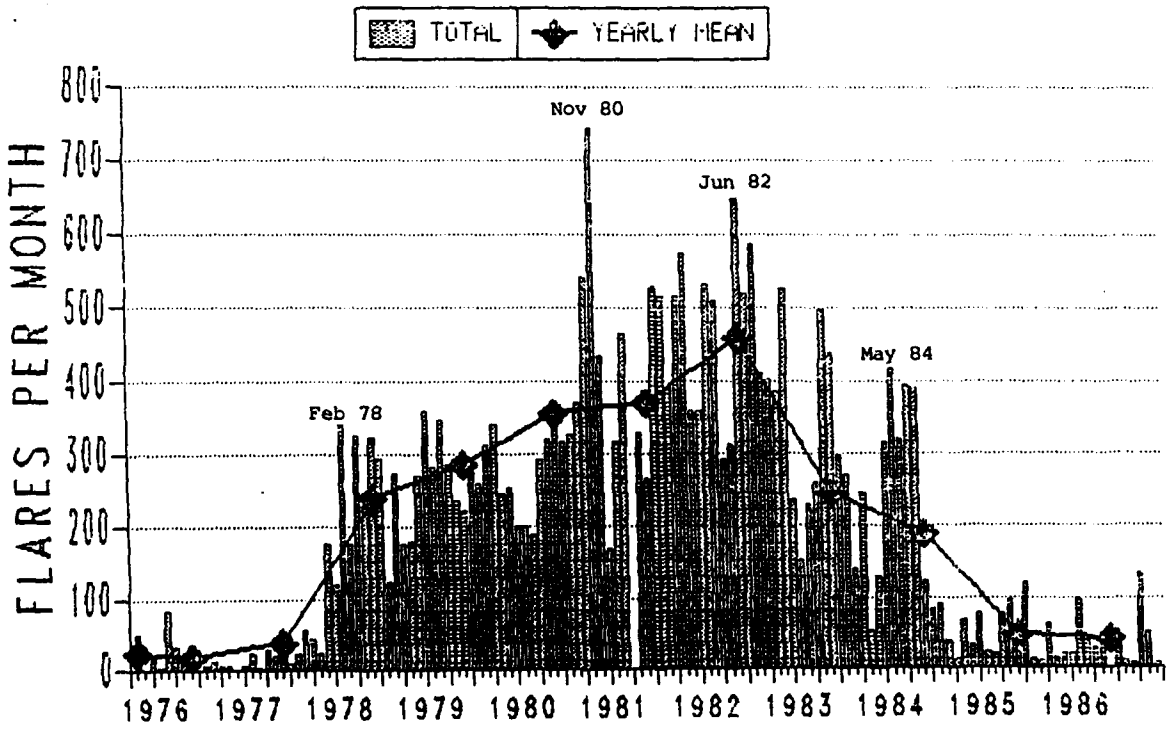
Flare Type		# of Flares	Percent
	0F 1	12,560	45.70%
	0N 2	8,502	30.94%
	0B 3	2,878	10.47%
0-IMPORTANCE	TOTAL:	23,940	87.11%
	1F 4	271	0.99%
	1N 5	1,191	4.33%
	1B 6	1,534	5.58%
1-IMPORTANCE	TOTAL:	2,996	10.90%
	2F 7	10	0.04%
	2N 8	101	0.37%
	2B 9	374	1.36%
2-IMPORTANCE	TOTAL:	485	1.76%
	3F 10	0	0%
	3N 11	3	0.01%
	3B 12	51	0.19%
	4F 13	2	0.01%
	4N 14	1	<0.01%
	4B 15	3	0.01%
3-4 IMPORTANCE	TOTAL:	60	0.23%
GRAND	TOTAL:	27,481	100.00%

Figure 1-5. Total number of flare reports for each flare type. This figure gives flare type distribution for the entire 11-year POR. The inset table gives a number for each flare type and the percent of the total.

	IMPORTANCE CLASS			
YEAR	1	2	3	
1936	73.0%	22.0%	4.8%	
1937	73.0	24.0	3.3	
1938	76.0	23.0	1.5	
1939	81.0	18.0	1.3	
1940	78.0	21.0	1.6	
1941	70.0	26.0	3.3	
1942	72.0	25.0	3.3	
1943	81.0	19.0	0	
1944	81.0	19.0	0	
1945	88.0	9.0	2.5	
1946	74.0	22.0	4.4	
1947	85.0	14.0	0.9	
1948	81.0	18.0	1.1	
1949	86.0	13.0	0.8	
1950	88.0	12.0	0.7	
1951	87.0	12.0	0.9	
1952	87.0	13.0	0	
1953	88.0	12.0	0	
1954	0	0	0	
1955	88.0	11.0	1.0	
1956	85.0	15.0	0.8	
1957	90.0	10.0	0.8	
1958	91.0	9.0	0.6	
1959	89.0	11.0	0.5	
1960	91.0	8.0	0.8	
24 Year Mean:	82.6%	16.1%	1.3%	Smith (1963)
1976	88.9%	11.1%	0	
1977	79.7	17.7	2.6	
1978	79.6	17.9	2.4	
1979	85.9	13.3	0.8	
1980	86.5	12.6	0.8	
1981	86.5	12.4	1.1	
1982	83.3	14.5	2.3	
1983	87.5	9.9	2.7	
1984	85.5	12.7	1.8	
1985	83,7	14.0	2.3	
1986	79.5	15.4	5.1	
11 Year Mean:	84.6%	13.7%	1.7%	

Figure 1-6. Yearly percentages of 1-, 2-, and 3-importance flares, 1936-60 (Smith, 1963), and 1976-86. Percentages do not include subflares (0-importance).

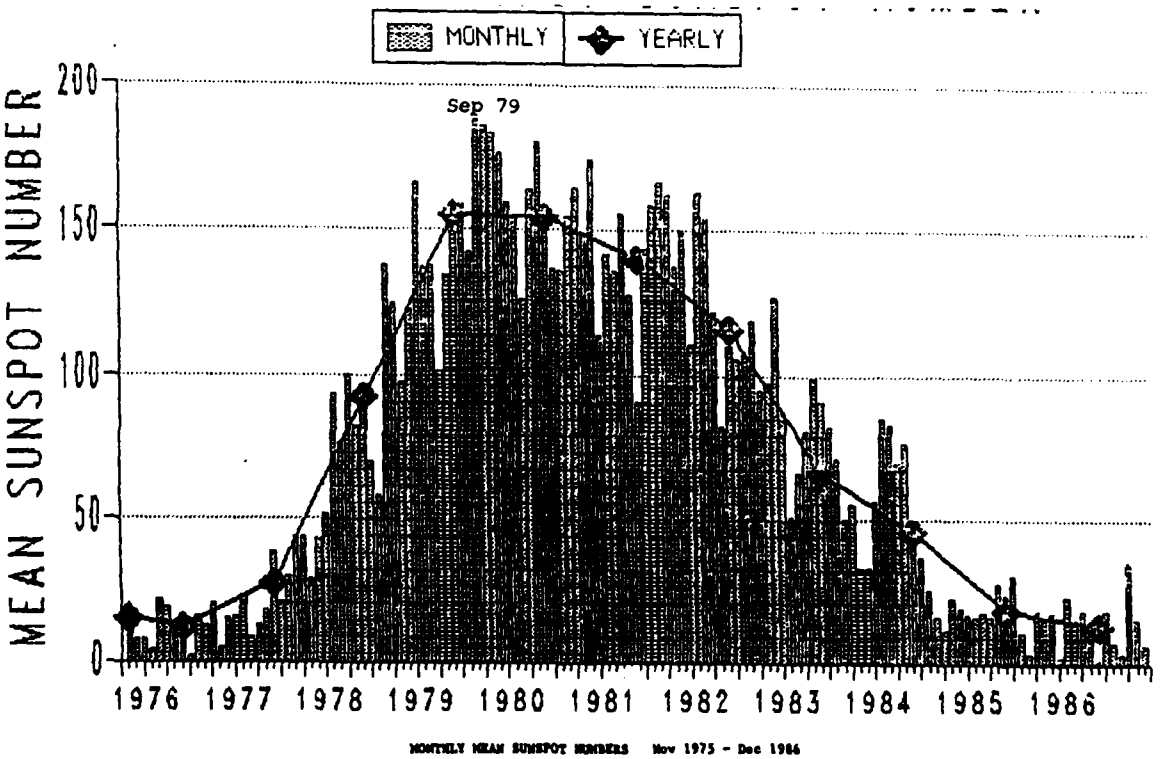
1-4.2 Flare Occurrence (all flare types). Figure 1-7 shows that while flare activity was very low during the first 2 years (1976-77) of Cycle 21, it increased sharply in the beginning of 1978 and reached a peak in November 1980. The Sun continued to be active through 1983, but quieted rapidly after July 1984.



YEAR	MONTH (- 1 -)	(- 2 -)	(- 3 -)	(- 4 -)	(- 5 -)	(- 6 -)	(- 7 -)	(- 8 -)	(- 9 -)	(10 -)	(11 -)	(12 -)	TOTAL
1975											49		49
1976	23	4	86	32	16	9		7	13	7	5	1	203
1977	6	23	4	28	21	24	9	23	56	45	23	179	443
1978	120	341	177	327	248	324	296	124	273	178	182	271	2861
1979	359	284	346	287	237	221	280	241	313	341	244	253	3426
1980	201	201	190	291	322	346	317	327	371	543	743	434	4286
1981	170	319	465		331	265	530	518	391	518	574	360	4443
1982	359	534	516	291	313	450	519	586	412	403	385	529	5491
1983	235	152	231	260	496	437	299	271	139	244	54	129	2947
1984	314	418	322	394	390	123	85	91	37	12	68	32	2286
1985	75	23	20	75	97	49	119	12	8	60	14	20	572
1986	19	98	44	30	34		42	10	6	135	49	7	474
	1881	2397	2395	2015	2505	2450	2496	2230	2019	2486	2392	2215	27481

Figure 1-7. Total number of flare occurrences a month, and yearly averages. Monthly and yearly totals are summarized in the accompanying table. April 1981 data is missing.

Figure 1-8 shows mean monthly sunspot numbers for the same period as Figure 1-7. Data shown here was obtained from solar-geophysical periodicals issued by the National Geophysical Data Center (NGDC). The frequency curve shown is typical of other sunspot cycles. Sunspot activity shows a sharp increase in the first half of the cycle and a gradual decline in the second half. When time plots of flares and sunspots are compared, several generalizations can be made; for example, 1978's rapid increase in flare activity is accompanied by a corresponding increase in the number of sunspots. During the next 2 years (1978-79), sunspot activity increased rapidly while flare occurrence flattened out. Sunspots reached a maximum in September 1979, but flare frequency did not peak until a year later. A secondary flare maximum (in June 1982) corresponds to the onset of a rapid decline in sunspot activity. At the end of the cycle, both flare and sunspot numbers have similar plots.



MONTHLY MEAN SUNSPOT NUMBERS Nov 1975 - Dec 1986

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1975											19.4	7.8	15.5
1976	8.1	4.3	21.9	18.8	12.4	12.2	1.9	16.4	13.5	20.6	5.2	15.3	12.6
1977	16.4	23.1	8.7	12.9	18.6	38.5	21.4	30.1	44.0	43.8	29.1	43.2	27.5
1978	51.9	93.6	76.5	99.7	82.7	95.1	70.4	58.1	138.2	125.1	97.9	122.7	92.5
1979	166.6	137.5	138.0	101.5	134.4	149.5	159.4	142.2	188.4	186.2	183.3	176.3	155.4
1980	159.6	155.0	126.2	164.1	179.9	157.3	136.3	135.4	155.0	164.7	147.9	174.4	154.6
1981	114.0	141.3	135.5	156.4	127.5	90.9	143.8	158.7	167.3	162.4	137.5	150.1	140.4
1982	111.2	163.6	153.8	122.0	82.2	110.4	106.1	107.6	118.8	94.7	98.1	127.0	115.9
1983	84.3	51.0	66.5	80.7	99.2	91.1	82.2	71.8	50.3	55.8	33.3	33.4	66.6
1984	57.0	85.4	83.5	69.7	76.4	46.1	37.4	25.5	15.7	12.0	22.8	18.7	45.9
1985	16.3	15.9	17.2	16.2	27.5	24.2	30.7	11.1	3.9	18.6	16.2	17.3	17.9
1986	2.5	23.2	15.1	18.5	13.7	1.1	18.1	7.4	9.8	35.4	15.2	6.8	13.4

Figure 1-8. Monthly mean sunspot numbers and yearly averages. The table gives numerical data.

Figure 1-9 merges the yearly values from Figures 1-7 and 1-8. It shows that, with respect to the entire solar cycle, sunspot and flare activity are positively correlated, a finding well documented for past cycles (Smith, 1963). A more detailed look at the comparison, however, shows that the rate of change of sunspot number and flare activity does not necessarily correspond.

A sharp increase or decrease in sunspot frequency does not always have a correspondingly sharp rise or fall in flare frequency. In fact, 2 years on the declining side of the sunspot cycle actually showed an *increase* in number of flares. This data suggests that sunspots are not always good predictors of flares.

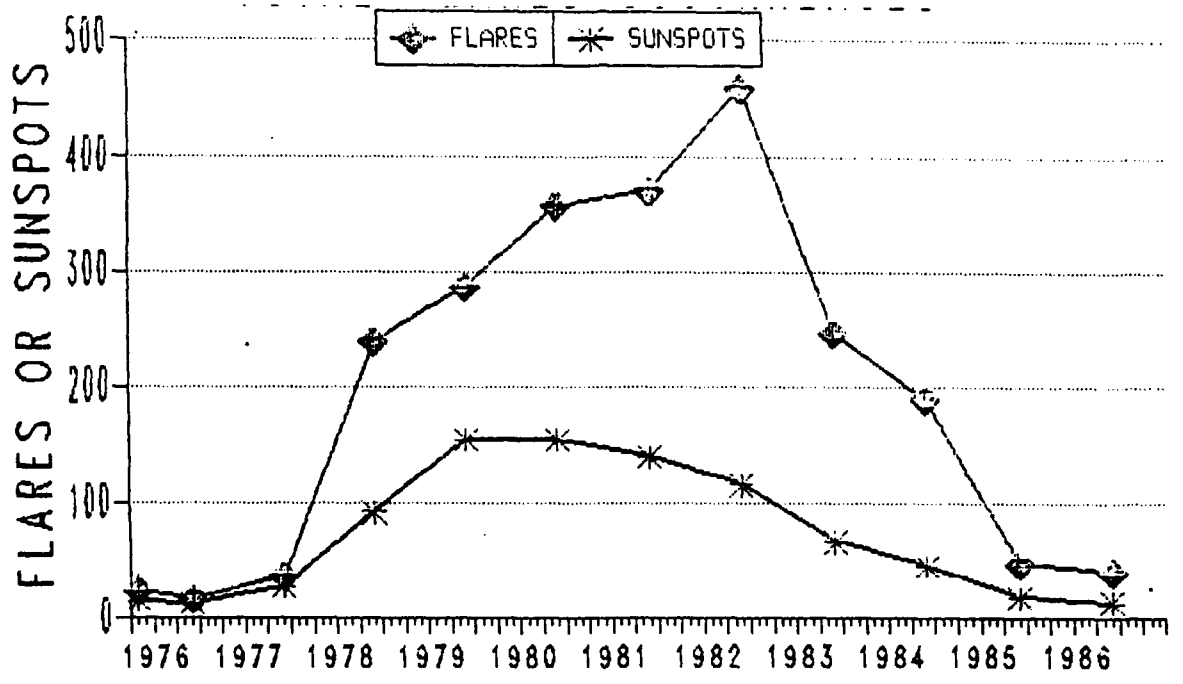
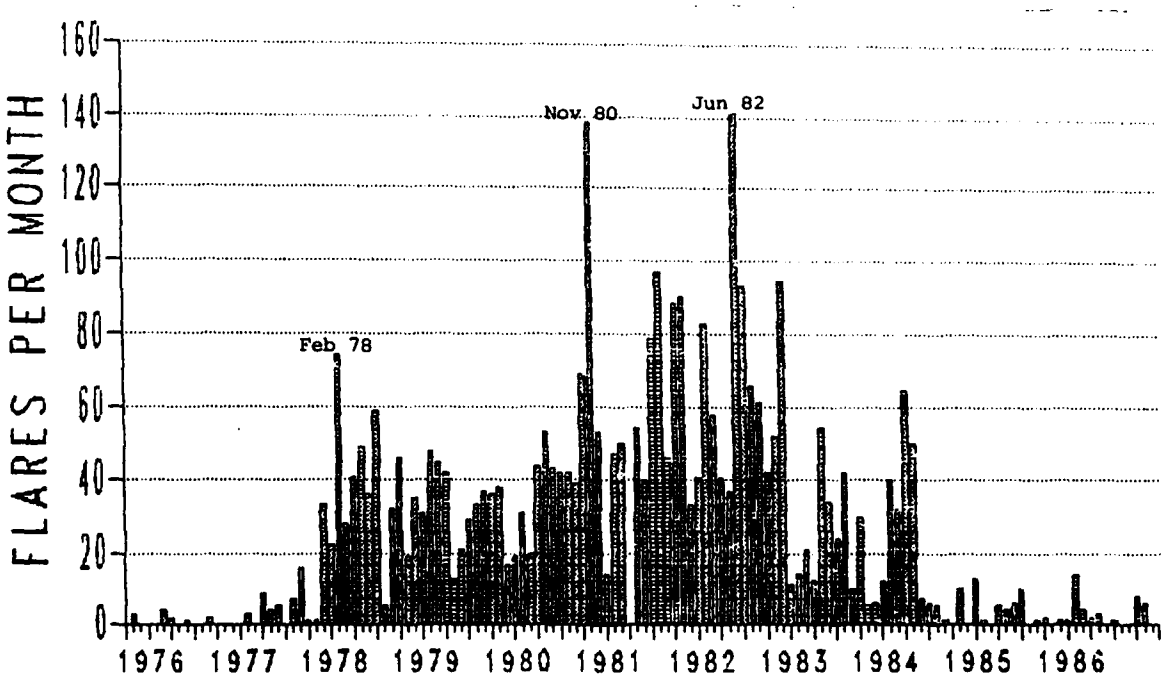


Figure 1-9. Yearly averages of mean monthly sunspot number, and yearly averages of total number of flares.

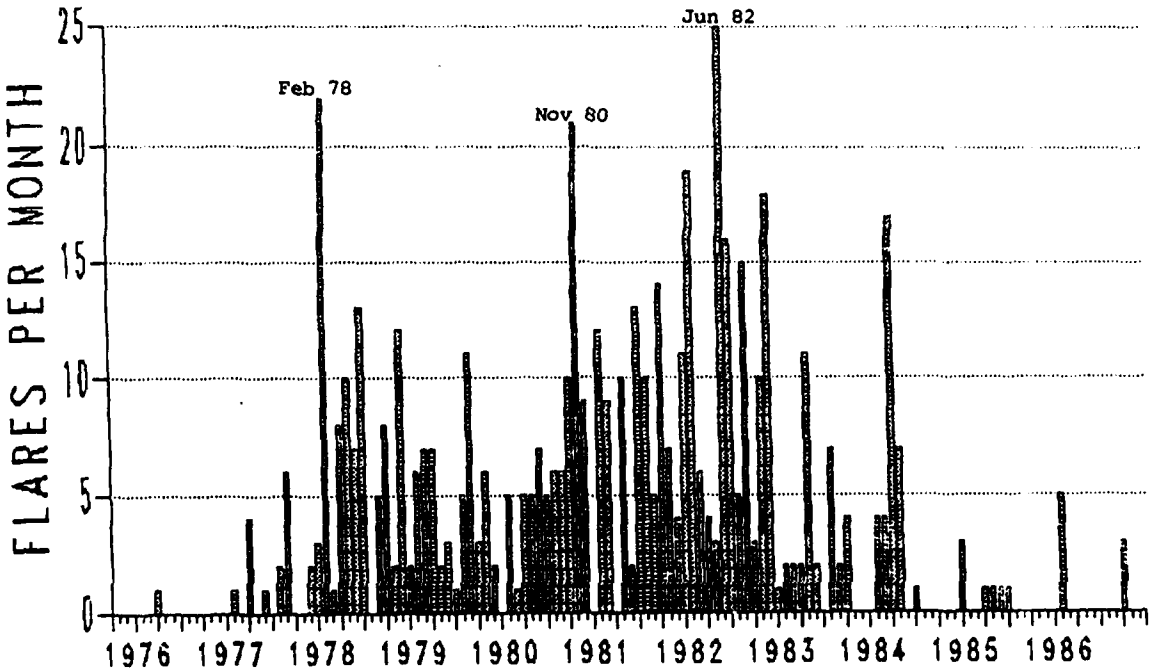
1-4.3 Flare Occurrence (each type). Figures 1-10 through 1-12 are time plots of flares. Figure 1-10 depicts flares with importance ratings of 1 through 4; subflares are not included. The 2 most active months for higher importance flares were November 1980 and June 1982. But November 1980 had considerably more *total* flares (743) than June 1982 (650), suggesting that more of the June 1982 flares were larger. Note also that a February 1978 peak is followed by a decline through 1980. The total number of flares per month during this period stayed nearly constant, or rose slightly, suggesting that a higher percentage of large flares were observed in the beginning of 1978 than in the 2 years following.



YEAR	(- 1 -)	(- 2 -)	(- 3 -)	(- 4 -)	(- 5 -)	(- 6 -)	(- 7 -)	(- 8 -)	(- 9 -)	(10 -)	(11 -)	(12 -)	TOTAL
				MONTH									
1975											3		3
1976			4	2		1			2				9
1977		3		9	4	5		7	14	1	1	33	79
1978	22	74	28	41	49	36	39	5	37	46	19	35	446
1979	31	48	45	42	13	21	29	33	37	36	38	17	390
1980	19	31	20	44	53	43	42	42	39	69	139	53	594
1981	14	47	50		54	40	79	97	46	88	90	33	630
1982	41	83	58	41	37	141	93	66	61	42	52	94	809
1983	11	14	21	12	54	34	24	42	10	30	5	6	263
1984	12	40	32	45	50	7	6	5	1		10		226
1985	13	1		5	4	6	10		1	2		1	43
1986	1	14	4	2	3		1			8	6		39
	164	355	262	263	321	334	343	297	245	322	363	272	3541

Figure 1-10. Number of flare occurrences a month with importance 1 through 4. The table gives numerical data.

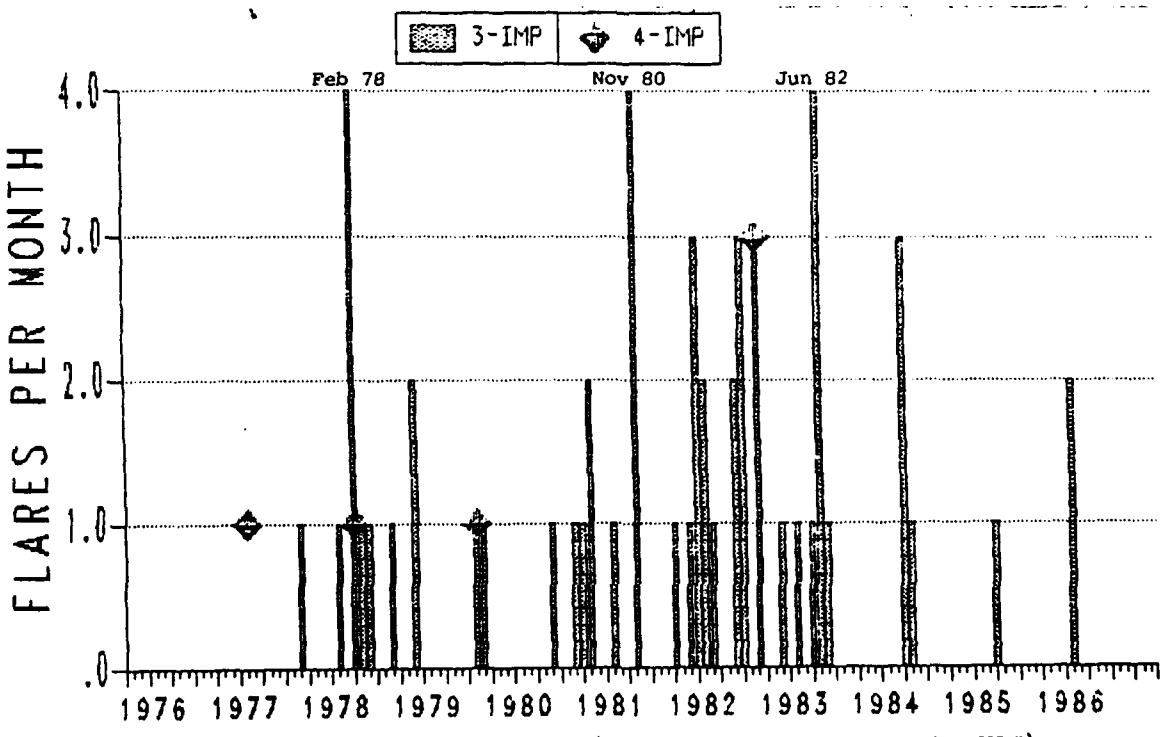
Comparing Figure 1-11 data (importance 2 through 4) with total flares suggests that a higher percentage of larger flares occurred in February 1978 and June 1982 (near beginnings and endings of more active periods) than in November 1980, near the middle of the cycle.



YEAR	MONTH (- 1 ->)	(- 2 ->)	(- 3 ->)	(- 4 ->)	(- 5 ->)	(- 6 ->)	(- 7 ->)	(- 8 ->)	(- 9 ->)	(10 ->)	(11 ->)	(12 ->)	TOTAL
1976				1									1
1977		1		4		1		2	6			2	16
1978	3	22	1	8	10	7	13		5	8	2	12	91
1979	2	6	7	7	2	3	1	5	11	3	6	2	55
1980		5	1	5	5	7	5	6	6	10	21	9	80
1981		12	9		10	2	13	10	5	14	7	4	86
1982	11	19	6	4	3	25	14	5	15	3	10	10	135
1983	1	2	2	2	11	2		7	2	4			33
1984		4	4	17	7		1						33
1985	3			1	1	1	1						7
1986		5								3			8
	20	76	30	49	49	48	50	35	50	45	46	47	545

Figure 1-11. Number of flare occurrences a month with importance 2 through 4. The table gives numerical data.

Comparing Figure 1-12 (importance 3 and 4) with total flare occurrences again suggests that a higher percentage of larger flares occurred in February 1978 and June 1982 (near beginnings and endings of more active periods) than in November 1980, near the middle of the cycle.



YEAR	MONTH (-1-)	(-2-)	(-3-)	(-4-)	(-5-)	(-6-)	(-7-)	(-8-)	(-9-)	(10-)	(11-)	(12-)	TOTAL
1977		1							1				2
1978		1		5	1	1			1			2	11
1979								2	1				3
1980						1			1		2		5
1981		1			4					1		1	7
1982	3	2	1			2	3		6			1	18
1983		1		1	4	1							7
1984				3	11								4
1985				1									1
1986		2											2
	3	8	1	10	10	5	3	2	10	2	2	4	66

Figure 1-12. Number of flare occurrences a month with importance 3 and 4. The table gives numerical data.

1-4.4 Flare Location. Figure 1-13 shows the distribution of flare occurrences relative to specific regions on the solar disk. The numbers show flare incidence in each region for the entire 11-year POR. Two features are evident:

- Although a large part of the Sun is covered by regions designated as "polar," relatively few flares were observed north of 40° N or south of 40° S.
- Fewer flares are observed towards the limbs than near the central meridian. Both characteristics were noted in earlier solar cycles (Smith, 1963).

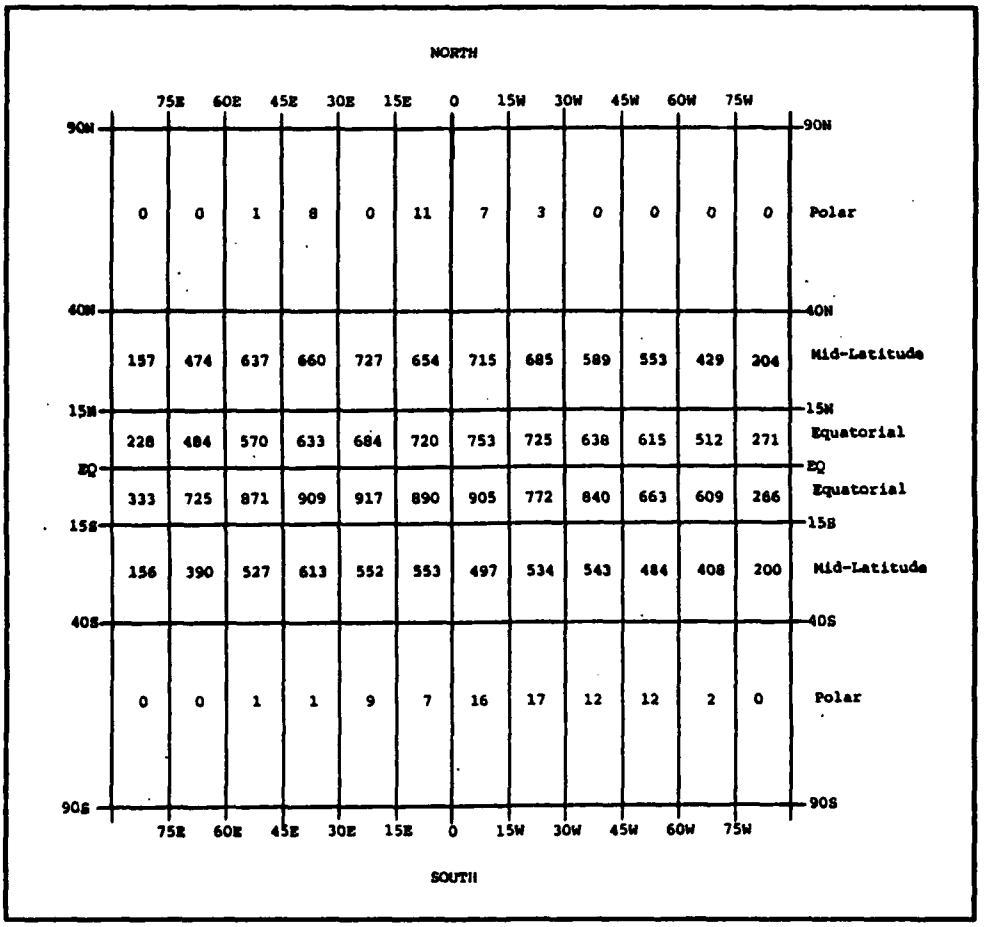


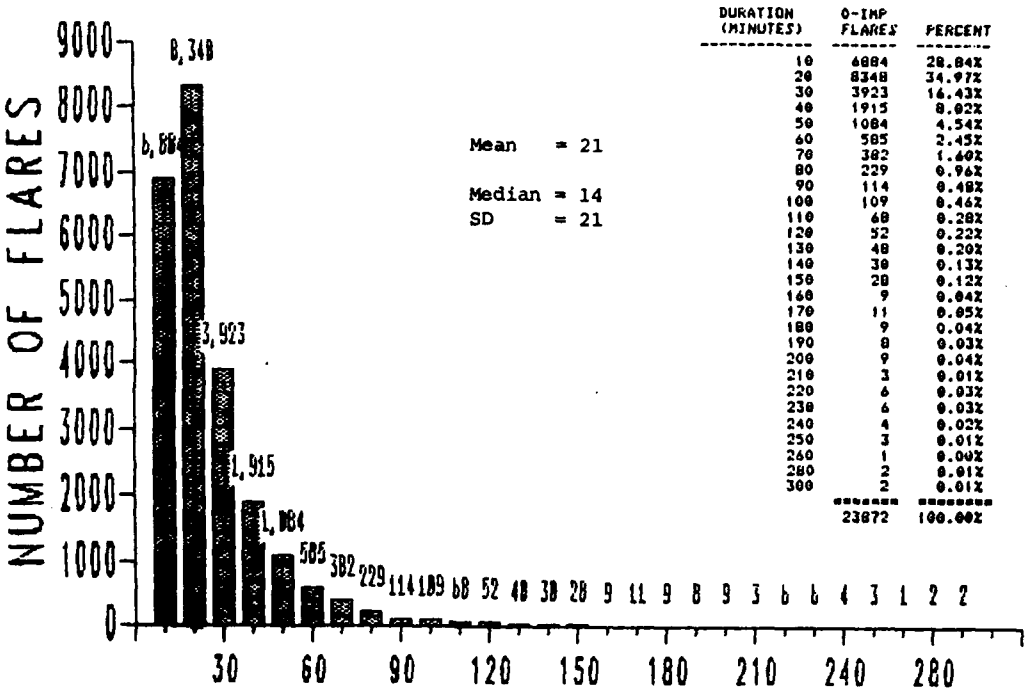
Figure 1-13. Spatial distribution of number of observed flares for each region on the solar disk.

As can be seen in Figure 1-14, the beginning of the solar cycle shows only a few reports, all confined to the equatorial region. The next 2 years (1976 and 1977) show much more latitudinal spread, with a drastic shift toward the mid-latitudes. As the solar cycle continues, flares gradually shift back toward the equator. This "butterfly" pattern is typical of other solar cycles and has been documented by many researchers (Altrock, 1985).

	YEAR												
LAT	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	TOTAL
>40			1	12	3	7	3	3	1				30
39				36		1	1						38
38			2	7									9
37				18		2							20
36				20	1				1			2	24
35			2	26	12							7	47
34			2	8	4	1						2	17
33			3	20	11								34
32			1	14	22								37
31		1	2	12	30			1				1	47
30		1	2	15	19	6	4	2				2	51
29		1	2	6	46	16	7	1				2	75
28		2	2	13	37	24	4	1				2	85
27			5	30	49	32		2				8	126
26			11	43	57	30	5	5	1			12	164
25			2	62	31	32	5	14	1			8	155
24			10	29	41	33	3	20		2		16	154
23		2	13	51	39	49	23	35	13	5		16	246
22			9	77	48	75	21	47	21	14		17	329
21			11	120	60	63	43	56	26	13		11	403
20		2	16	152	68	71	84	79	46	16	2	5	541
19		1	8	196	82	72	108	87	40	13		3	610
18		1	13	185	148	87	125	98	48	17			722
17		4	7	200	147	102	120	117	44	29		1	771
16		1	10	153	143	147	134	178	41	45			852
15		1	16	141	174	161	139	204	44	52	5		927
14			13	96	113	142	128	219	38	85	3	1	838
13		5	1	34	73	129	138	202	46	75	1		704
12		1	1	32	89	123	139	191	42	68			686
11				36	68	157	163	244	27	73	4	1	773
10			4	7	42	119	175	249	38	54	9	6	703
9			6	2	74	188	127	179	28	51	8	10	593
8			7	2	59	71	119	144	35	49	15	12	535
7	2	2	10		92	51	76	80	48	43	20	12	436
6	1	5	5		80	40	54	79	29	34	42	24	393
5		6	2		79	35	39	63	22	28	35	12	321
4	6	17	1		31	37	25	43	11	37	41	12	261
3	6	15			19	15	24	32	12	25	33	33	214
2	4	4	1		4	11	24	40	5	12	14	43	162
1		3	3		7	10	15	49	8	5	16	25	141
0						4	10	23	5	4	6	21	73
-1		1				5	1	16	9	5	11	26	74
-2						6	16	25	14	4	2	11	78
-3		4			4	12	37	20	25	20	1	19	142
-4	3	4		1	6	21	38	48	21	18	3	10	173
-5	2	7			7	28	63	58	22	50	7	2	246
-6	6	7			14	45	96	100	59	65	7	6	405
-7	7	23		3	6	70	116	132	97	47	7	5	513
-8	9	16			4	99	143	144	144	60	24	8	671
-9	1	11		3	5	104	120	192	192	86	35	10	759
-10		13		6	12	151	171	231	246	124	29	7	990
-11		10		14	17	170	164	231	224	169	44	5	1048
-12		18		34	49	163	133	272	158	175	20	2	1024
-13		3		25	60	151	144	215	134	155	22	5	914
-14	1	1		27	106	90	143	175	118	141	28	2	832
-15		2	1	47	123	76	110	130	120	102	16	4	731
-16			10	57	77	99	113	99	108	86	14	1	664
-17			9	58	72	98	118	89	97	63	14	2	620
-18			20	88	67	141	111	84	84	35	14		644
-19			9	88	68	100	93	71	87	10	7		533
-20		2	16	61	76	60	86	71	62	9	2		445
-21			25	57	60	48	62	60	46	5	3	3	355
-22			20	39	71	58	41	60	28	4	2	1	324
-23			10	49	54	48	32	51	11	2			257
-24			14	20	68	56	31	39	13	1			248
-25			28	23	67	39	34	20	4	2		4	221
-26		1	24	49	55	34	19	7	4		3	3	203
-27			30	47	40	44	14	17	8		3	3	206
-28			7	32	30	44	14	9	20			4	160
-29		2	1	28	16	44	19	2	21				133
-30			1	76	17	33	14	2	22			3	170
-31				24	16	24	2	1	6			1	76
-32				31	17	14	3						67
-33				23	11	14	1						51
-34		1		4	11	11		2	1				30
-35		1		6	9	8		5					29
-36				1	5	1							7
-37					1	1		2					4
-38			1	1				1					3
-39						1	1						2
(-40	1	1	11	6	1	4	55	1	1	1			82

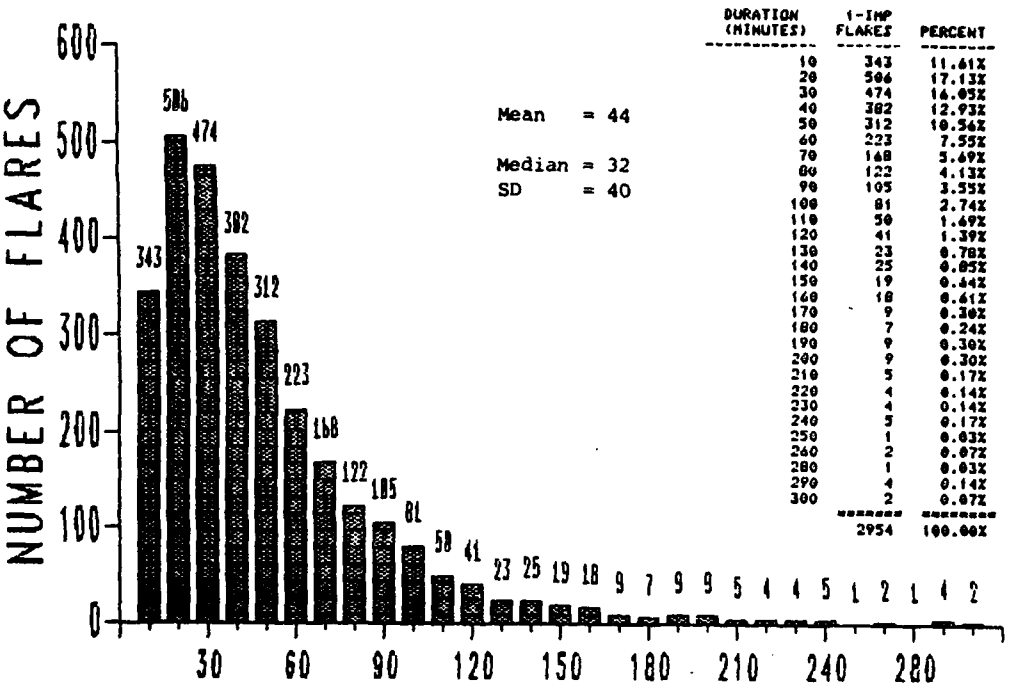
Figure 1-14. Latitudinal distribution of flare reports over time.

1-4.5 Flare Duration. Figures 1-15 through 1-18 show distributions of the different flare types with respect to "duration," or the elapsed time between the onset and ending of a flare. Figure 1-15 shows that most 0-importance flares last between 1 and 20 minutes, with an average duration of 21 minutes. The distribution is highly skewed. A sharp drop in the number of flares with duration greater than 30 minutes is evident. In fact, only 5% of 0-importance flares last longer than 1 hour. As shown in Figure 1-16, most 1-importance flares have a duration between 11 and 30 minutes; the mean is 44 minutes. Compared to the previous figure, there is a significant shift toward longer lasting flares. Distributions for the largest flares (Figures 1-17 and 1-18) show a continuing trend toward longer durations. These results of this analysis are similar to Smith (1963), shown in Figure 1-19.



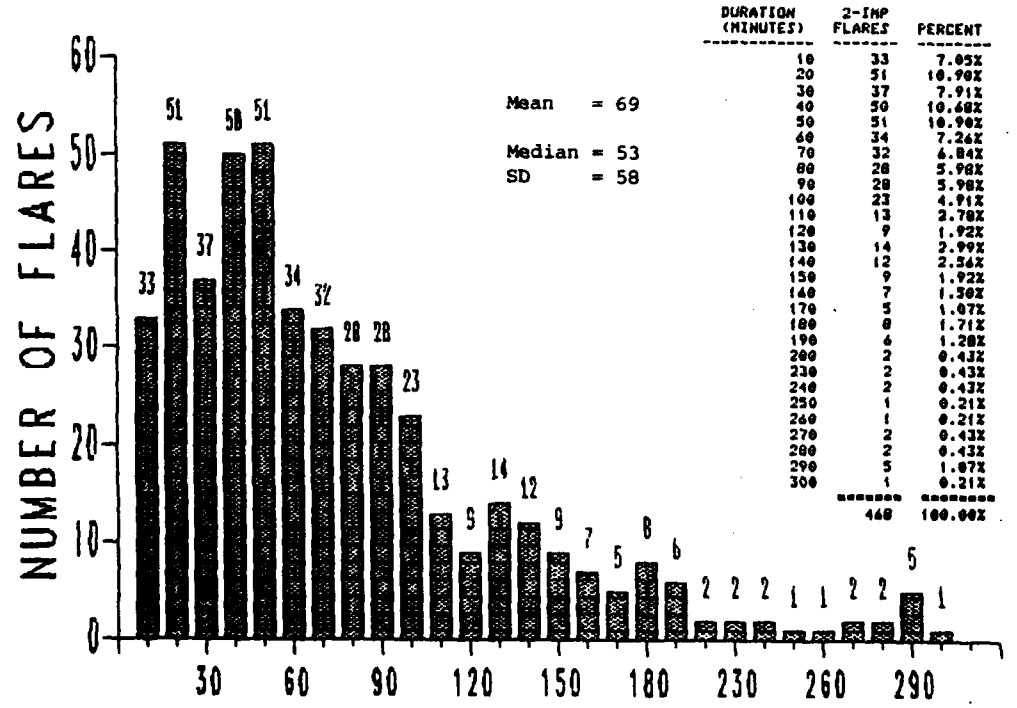
DURATION (MINUTES)	0-IMP FLARES	PERCENT
10	6884	28.84%
20	8348	34.97%
30	3923	16.43%
40	1915	8.02%
50	1084	4.54%
60	585	2.45%
70	382	1.60%
80	229	0.96%
90	114	0.48%
100	109	0.46%
110	68	0.28%
120	52	0.22%
130	48	0.20%
140	30	0.13%
150	28	0.12%
160	9	0.04%
170	11	0.05%
180	9	0.04%
190	8	0.03%
200	9	0.04%
210	3	0.01%
220	6	0.03%
230	6	0.03%
240	4	0.02%
250	3	0.01%
260	1	0.00%
280	2	0.01%
300	2	0.01%
	23872	100.00%

Figure 1-15. Number of "0-importance" flares categorized by duration in 10 minute intervals (1-10, 11-20, 21-30, etc.). The inset table gives duration, number of flares, and percent of total. Mean, median, and standard deviation (SD) are also shown.



DURATION (MINUTES)	1-IMP FLARES	PERCENT
10	343	11.61%
20	506	17.13%
30	474	16.05%
40	382	12.93%
50	312	10.56%
60	223	7.55%
70	168	5.69%
80	122	4.13%
90	105	3.55%
100	81	2.74%
110	50	1.69%
120	41	1.39%
130	23	0.78%
140	25	0.85%
150	19	0.64%
160	18	0.61%
170	9	0.30%
180	7	0.24%
190	9	0.30%
200	9	0.30%
210	5	0.17%
220	4	0.14%
230	4	0.14%
240	5	0.17%
250	1	0.03%
260	2	0.07%
280	1	0.03%
290	4	0.14%
300	2	0.07%
	2954	100.00%

Figure 1-16. Number of "1-importance" flares categorized by duration in 10 minute intervals (1-10, 11-20, 21-30, etc.). The inset table gives duration, number of flares, and percent of the total. Mean, median, and standard deviation (SD) are also shown.



DURATION (MINUTES)	2-IMP FLARES	PERCENT
10	33	7.05%
20	51	10.90%
30	37	7.91%
40	50	10.68%
50	51	10.90%
60	34	7.26%
70	32	6.84%
80	28	5.98%
90	28	5.98%
100	23	4.91%
110	13	2.78%
120	9	1.92%
130	14	2.99%
140	12	2.56%
150	9	1.92%
160	7	1.50%
170	5	1.07%
180	8	1.71%
190	6	1.28%
200	2	0.43%
230	2	0.43%
240	2	0.43%
250	1	0.21%
260	1	0.21%
270	2	0.43%
280	2	0.43%
290	5	1.07%
300	1	0.21%
	468	100.00%

Figure 1-17. Number of "2-importance" flares categorized by duration in 10 minute intervals (1-10, 11-20, 21-30, etc.). Insert table gives duration, number of flares, and percent of total. Mean, median, and standard deviation (SD) are also shown.

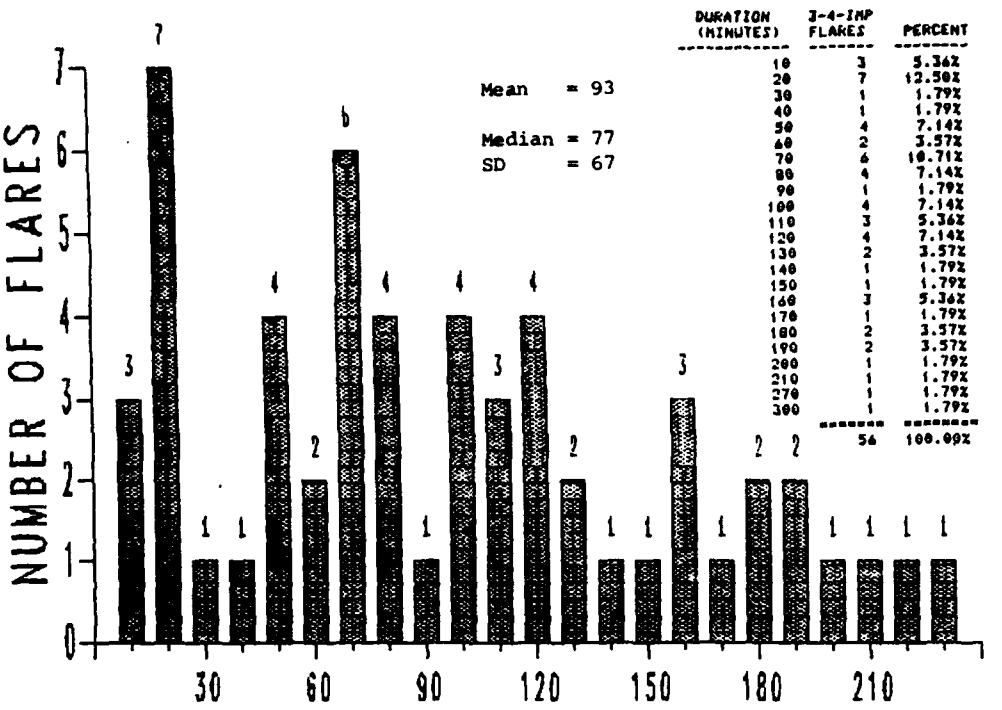


Figure 1-18. Number of "3- or 4-importance" flares categorized by duration in 10-minute intervals (1-10, 11-20, 21-30, etc.). Inset table gives duration, number of flares, and percent of total. Mean, median, and standard deviation (SD) are also shown.

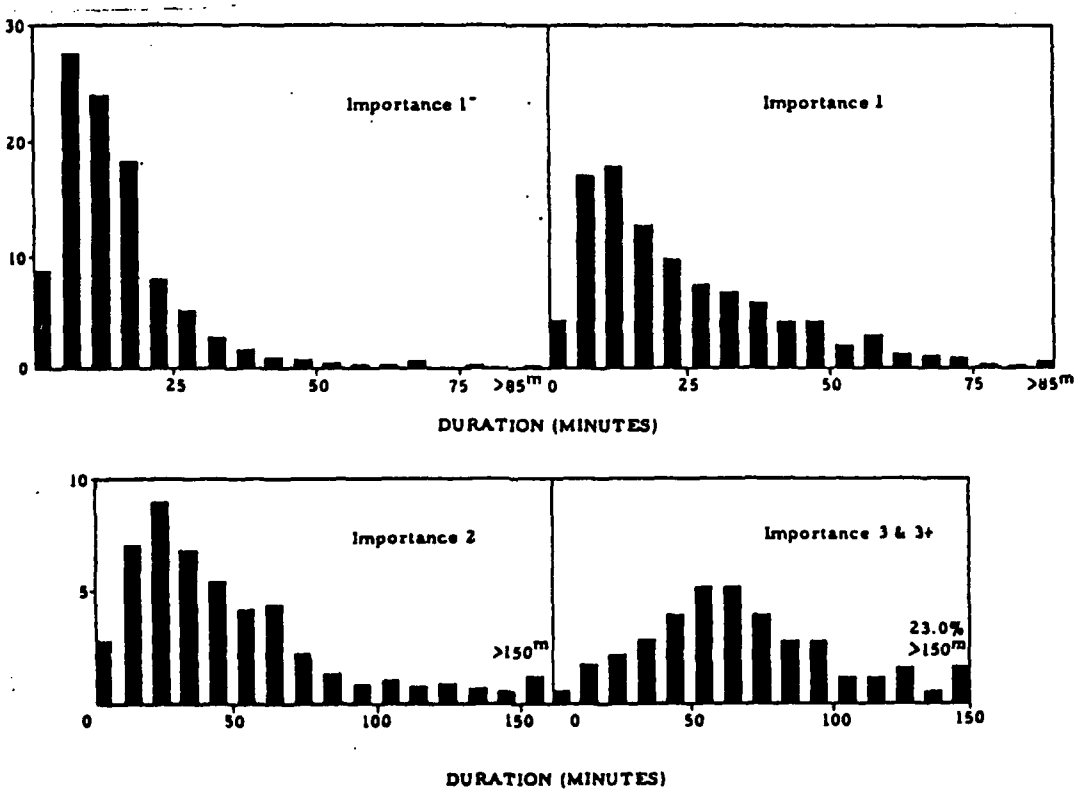


Figure 1-19. Distribution of flare durations, 1937-1958 (Smith, 1963).

1-5 SUMMARY. Flare data from USAFETAC's SCDB was surveyed for Solar Cycle 21 to determine the quality and utility of the data for use in a study of the conditional climatology of Ap. The data was organized into customer-specified groups and new fields were calculated. Although the database contains many observations, some reports from 07Z to 09Z were missing because some solar observatories did not patrol the Sun during that 3-hour period. This problem, however, was not a severe hindrance to the dataset since many of the flare characteristics found by previous researchers for other solar cycles were also evident in this data. For example, a comparison of sunspots and flares revealed that flares are more likely to occur during the declining (or ending) portion of the solar cycle than during its beginning.

A regional analysis showed that flares occurred near the equator at the end of the last solar cycle, moved quickly toward the mid-latitudes by the beginning of the next cycle, and then migrated back to the equator by the end of the cycle.

USAFETAC's solar flare dataset is considered satisfactory (in both quality and quantity) for use in a variety of future flare studies. It was an integral part of our Ap conditional climatology study.

Chapter 2

ANALYSIS OF GÖTTINGEN'S PLANETARY GEOMAGNETIC INDEX (Ap)

2-1 INTRODUCTION. An analysis of the Göttingen planetary geomagnetic index (Ap) was performed using data from the National Geophysical Data Center (NGDC). A preliminary and separate analysis of Ap was required to establish a baseline for studying the relationship between solar flares and geomagnetic storms. In the following chapters, ap and Ap are used interchangeably when describing geomagnetic disturbances in general; by definition, however, "little" ap refers to the *3-hour* index and "big" Ap to the *daily* index.

The Göttingen index is a linear and nondimensional measure of the Earth's global magnetic activity; it has values between 0 and 400. The index is derived from data produced by 12 surface magnetometer sites around the world that lie between geomagnetic latitudes 46 and 63, North and South (Townsend, 1985). It is important to remember that Ap is not a measure of the amplitude of the earth's magnetic field, but a measure of *variability* of the magnetic field over a given period of time (3 hours or 1 day). For a more thorough explanation of geomagnetic calculations, see AFGWC/TN-80/002, *Geomagnetic Index Calculation and Use at AFGWC*. For this study, Ap data was analyzed in a number of ways, including frequency of occurrence; monthly, seasonal, and yearly averages; and frequency of geomagnetic storms. The results of an autocorrelation analysis, with accompanying conditional climatology tables, are also shown.

2-2 THE Ap DATABASE. The study contains Göttingen indices from November 1975 to December 1986. The 11-year POR completely spans Solar Cycle 21, which ran from June 1976 to September 1986. Figure 2-1 gives a monthly count of 3-hour ap values. Every possible 3-hour time period (32,632 of them--8 values a day times about 30.5 days a month times 134 months) is represented here.

COUNT OF 3-HOUR ap VALUES

YEAR	MONTH (- 1 -)	(- 2 -)	(- 3 -)	(- 4 -)	(- 5 -)	(- 6 -)	(- 7 -)	(- 8 -)	(- 9 -)	(10 -)	(11 -)	(12 -)	TOTAL
1975											240	248	488
1976	248	232	248	240	248	240	248	248	240	248	240	248	2928
1977	248	224	248	240	248	240	248	248	240	248	240	248	2920
1978	248	224	248	240	248	240	248	248	240	248	240	248	2920
1979	248	224	248	240	248	240	248	248	240	248	240	248	2920
1980	248	232	248	240	248	240	248	248	240	248	240	248	2928
1981	248	224	248	240	248	240	248	248	240	248	240	248	2920
1982	248	224	248	240	248	240	248	248	240	248	240	248	2920
1983	248	224	248	240	248	240	248	248	240	248	240	248	2920
1984	248	232	248	240	248	240	248	248	240	248	240	248	2928
1985	248	224	248	240	248	240	248	248	240	248	240	248	2920
1986	248	224	248	240	248	240	248	248	240	248	240	248	2920
	2728	2688	2728	2640	2728	2640	2728	2728	2640	2728	2880	2976	32632

Figure 2-1. Monthly count of 3-hour ap values for the entire POR.

AFGWC calculates a "real-time" index that attempts (using data from five western hemisphere stations) to simulate the Göttingen index. Although USAFETAC's SESS Climatic Database (SCDB) includes this AFGWC data, the NGDC Göttingen values were used instead for two reasons:

- There are problems inherent with calculating a "real-time" planetary index using only data from western hemisphere stations.

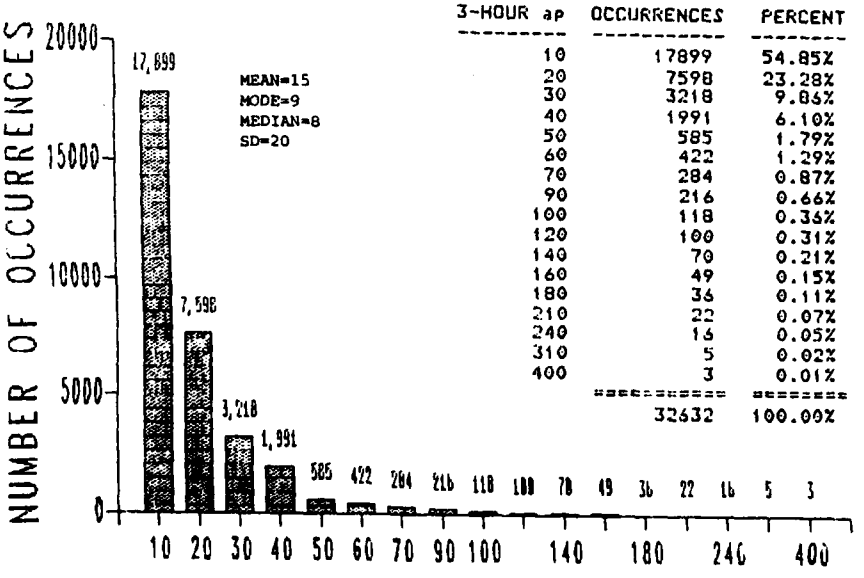
- The algorithm AFGWC uses in an attempt to correct the first problem is inconsistent.

2-3 DATA PROCESSING. Daily Ap indices were calculated by averaging each day's eight 3-hour ap values (00-21Z). Autocorrelation coefficients were calculated to determine the degree of persistence (or repeatability) of Ap. Panofsky and Brier (1968) define "autocorrelation" as "correlation of a value with itself." Autocorrelation coefficients are ordinary linear correlation coefficients between a time series and the same time series an interval of time (or "lag") later. By definition, the autocorrelation coefficient at lag zero is 1. The square of the autocorrelation coefficient is a measure of the amount of variance, compared to the total variance, that is explained by a particular lag. For example, a 3-day lag with an autocorrelation of 0.2 means that 4% of the variance of X during the 3rd day can be explained by the variance of the current X value.

2-4 Ap ANALYSIS. Ap data was analyzed with respect to: *frequency of occurrence; monthly, seasonal, and yearly averages;* and *the number of days a year with elevated Ap values.* Autocorrelation results and conditional climatology tables are also discussed.

2-4.1 Frequency of Occurrence. We used the results given by Figures 2-2 and 2-3 to help define "quiet" and "storming" conditions. Since small values of 3-hour ap indicate low activity, and since values between 0 and 10 occur most frequently, this group represents times of a "quiet" geomagnetic field. The larger the value, the greater the geomagnetic activity. For purposes of discussion, "non-quiet" conditions (values greater than 10) have been grouped into the three categories shown below. Mikhailutsa and Gnevyshev (1985) used similar categories in their study of geomagnetic disturbances.

Unsettled.....11-20
Active 21-40
Storming.....*greater than 40*



3-HOUR ap	OCCURRENCES	PERCENT
10	17899	54.85%
20	7598	23.28%
30	3218	9.86%
40	1991	6.10%
50	585	1.79%
60	422	1.29%
70	284	0.87%
90	216	0.66%
100	118	0.36%
120	100	0.31%
140	70	0.21%
160	49	0.15%
180	36	0.11%
210	22	0.07%
240	16	0.05%
310	5	0.02%
400	3	0.01%
	32632	100.00%

Figure 2-2. Frequency of Occurrence of 3-hour ap values for the entire POR. The inset table gives number of occurrences and percent of total. Mean (15), mode (9), median (8) and standard deviation (SD--20) are also shown. Values are displayed in groups of 10 (1-10, 11-20, 21-30, etc.). The most common values, with 17,899 observations or nearly 55% of the total, lie between 0 and 10 (mode: 9). The largest value observed during Solar Cycle 21 was 400 (three occurrences).

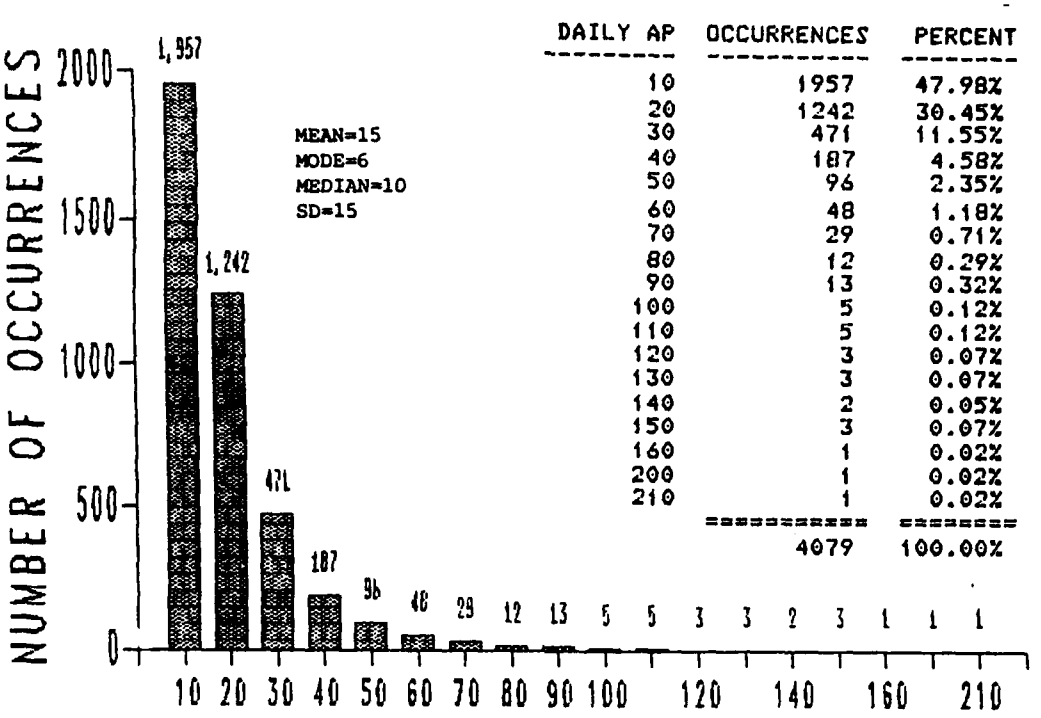
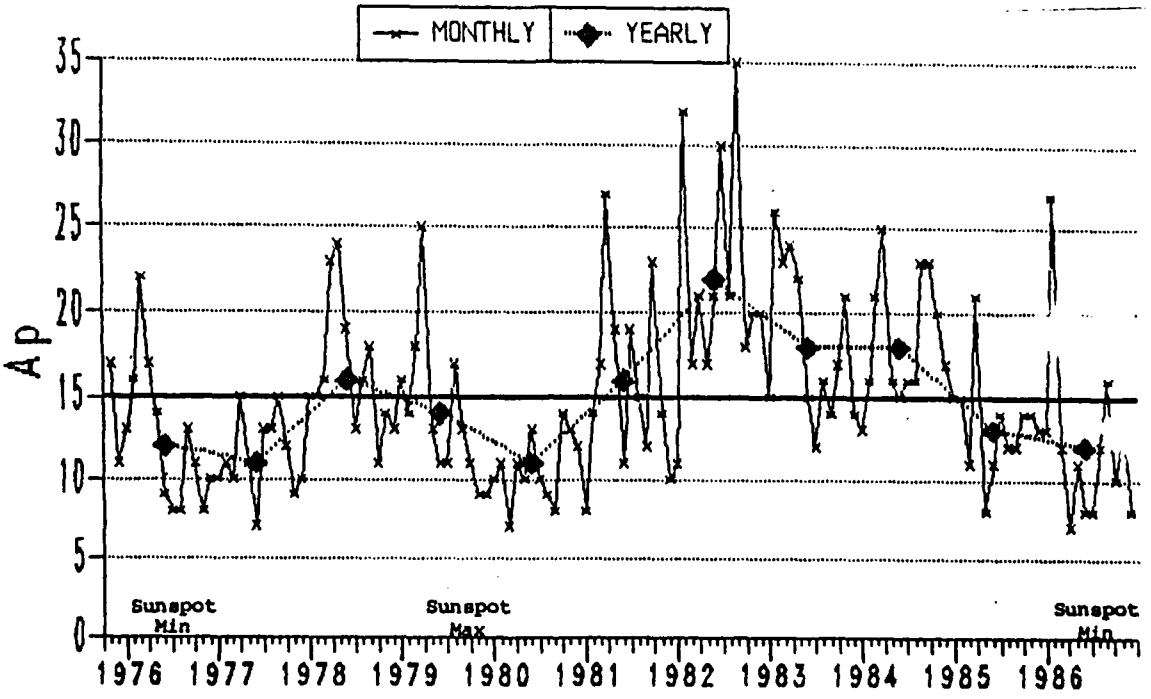


Figure 2-3. Number of daily Ap values for the entire POR. The distribution of daily Ap is similar to that of 3-hour ap. The mean of daily Ap is also 15. Olsen (1969) found a similar Ap for three solar cycles (1932-1968). As expected, the standard deviation of daily Ap (15) is slightly less than that of the 3-hour ap values. The inset table gives number of occurrences and percent of total. Mode (6) and median (10) are also shown. Values are displayed in groups of 10, the same as in Figure 2-2.

2-4.2 Monthly, Yearly, and Seasonal. Figure 2-4 shows how Ap oscillates around a mean of 15. It also reveals Ap peaks in 1978 and 1982. Since "quiet" and "storming" days are grouped together, these years (1978 and 1982) and their elevated mean values represent long periods of geomagnetic storming that occurred about 1 year before, and 3 years after, sunspot maximum. There are Ap minimums at sunspot minimum and maximum. Bartels (1963) analyzed Ap data from 1932 to 1961 and found similar lags for most solar cycles. Olsen (1969) analyzed data for eight solar cycles (1883-1957) and found an average lag of minus 1 and plus 2 years. The plots of monthly mean Ap values show variable behavior; there are periods when the mean monthly Ap varies little from month to month (near Ap minimums), while large monthly variations are evident during Ap maximums. It is evident that monthly mean Ap values do not vary smoothly from month to month.



YEAR	MONTH (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	TOTAL
1975											17	11	14
1976	13	16	22	17	14	9	8	8	13	11	8	10	12
1977	10	11	10	15	11	7	13	13	15	12	9	10	11
1978	15	15	16	23	24	19	13	16	18	11	14	13	16
1979	16	14	18	25	13	11	11	17	13	11	9	9	14
1980	10	11	7	11	10	13	10	9	8	14	13	12	11
1981	8	14	17	27	19	11	19	15	12	23	14	10	16
1982	11	32	17	21	17	21	30	21	35	18	20	20	22
1983	15	26	23	24	22	15	12	16	14	17	21	14	18
1984	13	16	21	25	16	15	16	16	23	23	20	17	10
1985	15	15	11	21	8	11	14	12	12	14	14	13	13
1986	13	27	12	7	11	8	8	12	16	10	13	8	12
MEAN	13	18	16	20	15	13	14	14	16	15	14	12	15

Figure 2-4. Monthly and yearly averages of daily Ap. The bottom line of the table gives 11-year monthly means.

Figure 2-5 gives annual plots of mean monthly Ap for the entire 11-year period. A seasonal oscillation is evident. Ap is higher during spring and fall than during summer and winter, and higher in spring than in fall. The semiannual fluctuation is not peculiar to this solar cycle, but has been well documented in past cycles, as well (Shapiro and Ward, 1960). Although a semiannual cycle is evident over many years, there are exceptions in individual years, notably 1982 and 1983.

See Figure 2-6 for maximum and minimum monthly and yearly values of daily Ap and 3-hourly ap.

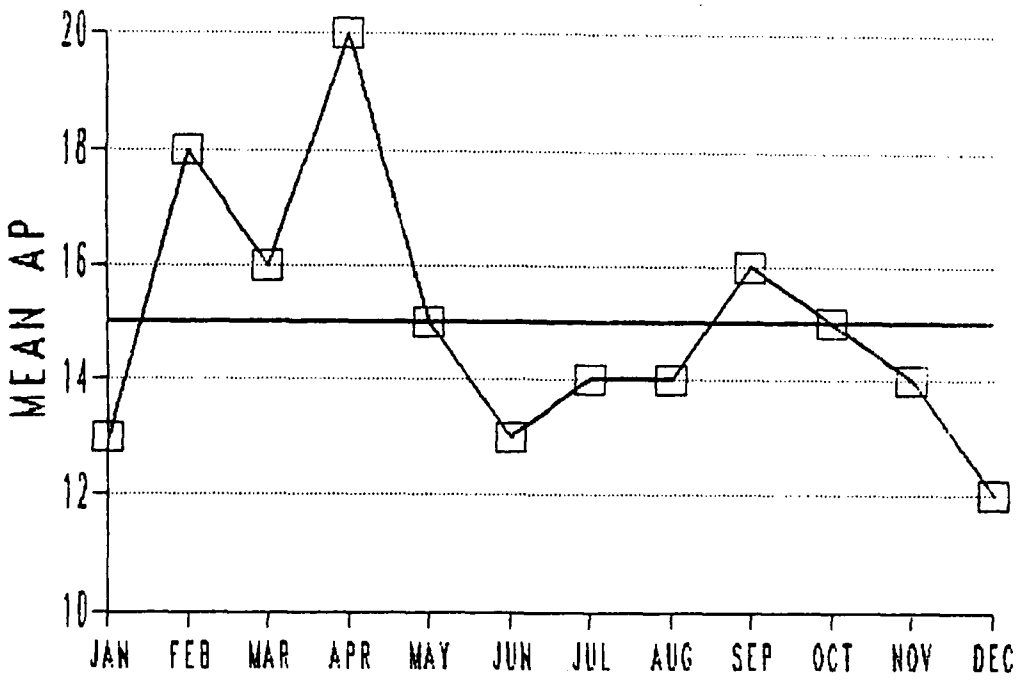


Figure 2-5. Mean seasonal fluctuation of daily Ap.

MAXIMUM MONTHLY AND YEARLY DAILY AP VALUES

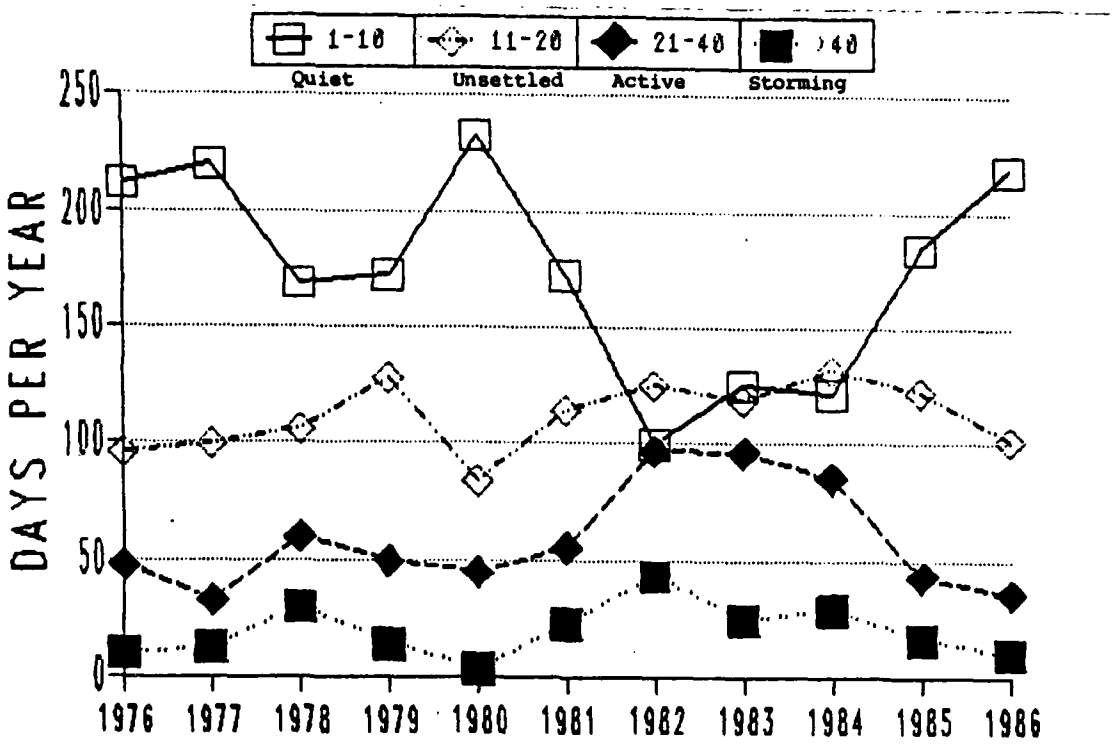
YEAR	MONTH 1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
1975											65	34	65
1976	47	35	145	118	97	29	19	30	51	34	31	45	145
1977	30	25	38	49	66	14	61	40	64	62	42	69	69
1978	89	48	70	64	96	82	80	124	109	32	60	48	124
1979	45	59	68	126	36	34	27	77	64	37	35	32	126
1980	27	40	30	30	38	59	46	28	18	44	24	79	79
1981	22	48	81	121	61	50	134	56	38	73	39	32	134
1982	34	60	107	61	56	62	153	107	199	35	83	62	199
1983	78	143	86	61	77	70	40	62	54	51	44	33	143
1984	32	54	60	103	44	42	62	75	112	75	112	33	112
1985	58	60	42	103	38	30	48	41	35	66	52	46	103
1986	37	202	33	19	67	28	20	29	89	31	67	22	202
	89	202	145	126	97	82	153	124	199	75	112	79	202

MAXIMUM MONTHLY AND YEARLY 3-HOUR AP VALUES

YEAR	MONTH 1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
1975											111	56	111
1976	154	80	207	236	236	111	67	67	80	67	56	94	236
1977	56	56	56	132	94	32	111	80	154	154	67	132	154
1978	154	154	111	207	236	179	207	236	207	56	132	94	236
1979	94	111	132	207	132	132	80	179	132	80	56	48	207
1980	56	132	67	67	94	94	132	94	32	80	39	179	179
1981	48	111	154	236	132	111	236	94	80	207	111	80	236
1982	67	132	207	132	94	111	400	179	300	94	154	154	400
1983	236	207	154	111	207	179	80	179	94	111	132	80	236
1984	80	80	154	179	80	111	132	132	179	111	207	80	207
1985	80	132	94	236	80	94	111	94	94	132	154	80	236
1986	94	400	67	39	154	56	80	56	300	111	111	48	400
	236	400	207	236	236	179	400	236	300	207	207	179	400

Figure 2-6. Maximum monthly and yearly values of daily Ap and 3-hour ap. The largest Ap (202) occurred in February 1986, while 3-hour ap reached an extreme value of 400 twice: once in July 1982 and again in February 1986.

2-4.3 "Quiet" and "Non-Quiet" Days. Figure 2-7 shows the number of "quiet," "unsettled," "active," and "storming" days a year from 1976 through 1986. Results are discussed further on the next page.



	AP CATEGORY									
	1-10		11-20		21-40		>40		TOTAL	
YEAR	COUNT	PERCENT	COUNT	PERCENT	COUNT	PERCENT	COUNT	PERCENT	COUNT	PERCENT
1976	212	58%	96	26%	48	13%	10	3%	366	100%
1977	220	60%	99	27%	33	9%	13	4%	365	100%
1978	169	46%	106	29%	60	17%	30	8%	365	100%
1979	172	47%	128	35%	50	14%	15	4%	365	100%
1980	233	64%	84	23%	45	12%	4	1%	366	100%
1981	172	47%	114	31%	56	16%	23	6%	365	100%
1982	99	27%	125	34%	97	27%	44	12%	365	100%
1983	125	34%	119	33%	96	26%	25	7%	365	100%
1984	121	33%	131	36%	85	23%	29	8%	366	100%
1985	184	51%	122	33%	43	12%	16	4%	365	100%
1986	218	60%	101	27%	36	10%	10	3%	365	100%
	1925	48%	1225	30%	649	16%	219	6%	4018	100%
MEAN	175		111		59		20		365	

Figure 2-7. Number of "quiet" (0-10), "unsettled" (11-20), "active" (21-40), or "storming" (greater than 40) days a year. The table gives actual yearly counts and percentages for each Ap category, along with an 11-year mean.

As shown in Figure 2-7, there is a large decrease in the number of quiet days from 1980 to 1982, along with a corresponding increase in non-quiet days. In 1982, the year of the highest mean Ap, there were almost equal chances (100 days, or about 30%) of having quiet, unsettled, or active days; 1982 also had the most storming days (44 days, or 12%). In contrast, 1980 was the quietest year; nearly 64% of its days had quiet geomagnetic conditions and only 1% (4 days) had storming conditions. In order to produce such a dramatic geomagnetic change between 1980 and 1982, the solar effects on the geomagnetic environment must also have experienced a large change.

As was also evident from Figure 2-7, and in contrast to the large fluctuation in the number of quiet days, the number of unsettled days a year throughout the solar cycle was nearly constant, with an average of 111, or 30%. The only year that deviated significantly from the 11-year mean was the extremely quiet 1980. Mikhailutsa and Gnevyshev (1985) found that different solar activity causes various degrees of geomagnetic disturbances. They determined that unsettled geomagnetic conditions were caused by filament cavities, and that stronger storms were the results of solar flares. The results of our own solar flare-geomagnetic index relationship will be discussed in the last chapter.

2-4.4 Conditional Climatology of 3-Hour ap. Figure 2-8 gives autocorrelation coefficients versus lags (in days) of 3-hour ap values for the entire POR. There are eight coefficients a day. The graph shows high correlation for the first 3 hours, a sharp drop during the rest of the 1st day, and a flattening of the curve to near zero after the 3rd day. Since an autocorrelation coefficient of 0.2 equates to only 4% of explained variance, knowing the current 3-hour ap value has little predictive value beyond 1 day.

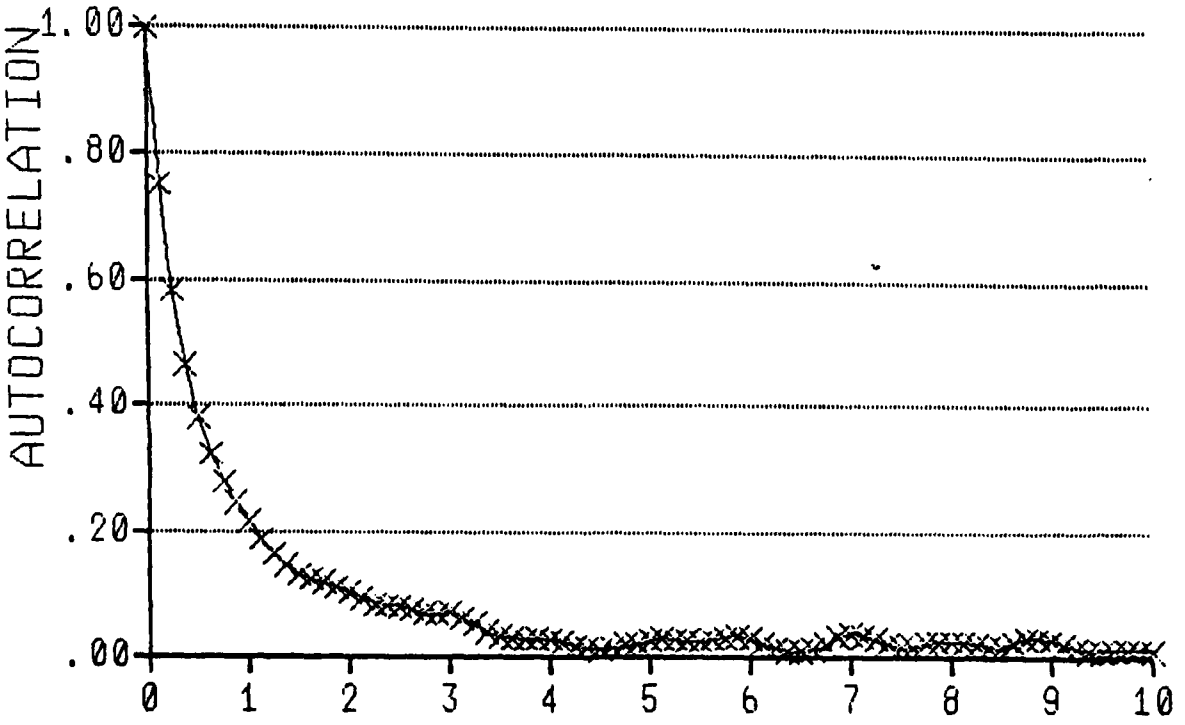


Figure 2-8. Results of time series analysis of 3-hour ap values.

Tables 2-1 through 2-8, on the following pages, give the conditional climatology (CC) of current 3-hour ap versus ap at 3, 6, 9, 12, 15, 18, 21, and 24 hours later. All these hours represent lags with an autocorrelation of greater than 0.2. The fact that these correlations are relatively low does not make the tables less useful; in effect, they forecast the variation of ap for the next 24 hours based on the current 3-hour ap.

The numbers in the first 12 columns represent percent frequency of occurrence. The mean and observation count for each interval are shown in the last two columns. The median interval (50%) is underlined. Although the distribution spreads out with larger ap values, these tables provide a reasonable baseline for forecasting ap. An example of how to use Tables 2-1 through 2-8 follows:

Suppose the current 3-hour ap is 50 and you need a forecast for the next eight 3-hour periods. Table 2-1 shows that of the 585 cases with a current 3-hour ap between 41 and 50, the median and modal ap value 3 hours later is between 3[illegible] and 40. Table 2-4 shows that the most probable ap value 6 hours later is between 11 and 20. In this example, if either the mode, median, or mean value were chosen, and some interpolation were performed to give a smooth transition between interval, then a complete 24-hour ap forecast would look like the one shown in Figure 2-9. Differences in these kinds of forecasts are caused by the influence large ap values have on the mean and median values; experience should determine the best method.

In summary, the 3-hour ap CC tables use the *current* 3-hour ap as a basis for predicting ap for the next 24 hours. They show that quiet days tend to remain quiet, while storming days tend to become quiet. Since solar activity is not used as a condition, the tables are weak in predicting the onset of geomagnetic disturbances. They are most useful when storming is not anticipated or during the hours after a storm in determining how quickly the geomagnetic field will return to pre-storm levels. The appendices contain tables that *do* use solar activity as a predictor of geomagnetic conditions.

ap:	Now	+3	+6	+9	+12	+15	+18	+21	+24hrs
Mode:	50	35	20	18	16	14	12	11	11
Median:	50	38	33	28	25	22	18	15	12
Mean:	50	40	36	32	30	28	27	26	25

Figure 2-9. Example 24-hour ap forecast matrix.

TABLE 2-1. Conditional climatology table for ap values 3 hours later. The first 12 columns show percent frequency of occurrence for each interval of 3-hour ap. The last two columns show the mean and total observation counts. The median interval is underlined.

PERCENT FREQUENCY OF OCCURRENCE
CURRENT ap VS ap 3 HRS LATER (1975-86)

	ap 3 HOURS LATER													
CURRENT ap	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>151	MEAN	TOTAL
0-10	81.3	14.8	2.7	0.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	7	17856
11-20	36.1	40.9	14.5	6.2	0.9	0.7	0.3	0.3	0.1	0.0	0.0	0.0	16	7586
21-30	14.1	37.6	25.0	14.7	3.8	2.2	1.2	0.7	0.3	0.1	0.2	0.1	23	3217
31-40	5.5	23.2	27.9	24.3	7.3	4.9	3.0	1.7	0.9	0.6	0.3	0.6	32	1991
41-50	4.3	13.2	20.2	28.7	11.8	8.0	5.6	3.2	1.9	1.5	1.0	0.5	40	585
51-60	1.4	12.1	17.3	26.3	13.7	11.4	6.6	5.5	2.1	2.1	0.7	0.7	44	422
61-70	0.7	5.6	13.0	21.1	14.8	11.3	10.9	9.9	5.6	2.8	1.8	2.5	55	284
71-90	0.0	6.5	13.0	19.9	13.9	12.0	12.5	7.9	2.3	5.6	3.2	3.2	57	216
91-110	0.0	5.1	6.8	13.6	6.8	13.6	16.9	13.6	10.2	3.4	7.6	2.5	69	118
111-130	1.0	3.0	5.0	11.0	9.0	6.0	8.0	14.0	11.0	10.0	9.0	13.0	87	100
131-150	0.0	1.4	0.0	4.3	4.3	8.6	8.6	10.0	14.3	20.0	10.0	18.6	102	70
>151	0.0	2.3	3.1	2.3	3.1	2.3	3.8	7.6	5.3	12.2	8.4	49.6	146	131
TOTAL	54.8	23.3	9.9	6.1	1.8	1.3	0.9	0.7	0.4	0.3	0.2	0.4	15	32576

TABLE 2-2. Conditional climatology table for ap values 6 hours later. Format same as Table 2-1.

PERCENT FREQUENCY OF OCCURRENCE
CURRENT ap VS ap 6 HRS LATER (1975-86)

	ap 6 HOURS LATER													
CURRENT ap	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>151	MEAN	TOTAL
0-10	76.1	17.0	4.1	1.8	0.4	0.2	0.1	0.1	0.1	0.0	0.0	0.0	9	17856
11-20	41.3	34.0	13.7	6.7	1.5	1.0	0.8	0.4	0.3	0.1	0.1	0.1	16	7586
21-30	23.3	33.9	20.8	12.8	3.5	2.4	1.2	1.0	0.5	0.2	0.2	0.2	22	3217
31-40	13.7	28.2	21.5	18.8	6.0	4.2	2.4	1.7	1.1	0.8	0.4	1.2	30	1991
41-50	8.0	22.7	22.4	19.8	8.0	6.2	4.1	3.6	2.4	1.4	0.5	0.9	36	585
51-60	6.6	19.0	20.9	21.6	8.8	10.0	5.5	2.6	1.4	2.1	0.7	0.9	38	422
61-70	4.2	13.0	19.4	21.8	11.6	8.5	6.0	4.9	1.4	2.1	3.2	3.9	48	284
71-90	5.1	11.6	19.0	23.1	8.8	8.8	5.1	5.6	3.7	4.6	1.4	3.2	48	216
91-110	5.9	16.1	12.7	18.6	11.9	6.8	10.2	6.8	3.4	5.1	0.8	1.7	48	118
111-130	3.0	10.0	10.0	13.0	7.0	10.0	7.0	15.0	3.0	5.0	7.0	10.0	70	100
131-150	0.0	10.0	7.1	8.6	17.1	8.6	12.9	7.1	5.7	5.7	10.0	7.1	72	70
>151	3.1	3.8	3.8	8.4	3.1	3.8	7.6	7.6	5.3	9.9	11.5	32.1	117	131
TOTAL	54.8	23.3	9.9	6.1	1.8	1.3	0.9	0.7	0.4	0.3	0.2	0.4	15	32576

TABLE 2-3. Conditional climatology table for ap values 9 hours later. Format same as Table 2-1.

PERCENT FREQUENCY OF OCCURRENCE
CURRENT ap VS ap 9 HRS LATER (1975-86)

	ap 9 HOURS LATER													
CURRENT ap	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>151	MEAN	TOTAL
0-10	73.0	18.2	4.7	2.5	0.5	0.4	0.3	0.2	0.1	0.1	0.0	0.1	10	17856
11-20	44.3	31.1	12.9	6.6	1.9	1.1	0.7	0.5	0.3	0.2	0.1	0.2	16	7586
21-30	27.3	31.6	21.1	11.4	3.0	2.1	1.2	0.9	0.5	0.2	0.4	0.3	22	3217
31-40	17.7	27.6	20.6	16.7	5.3	4.3	2.2	1.7	1.1	1.0	0.4	1.3	29	1991
41-50	14.7	27.0	19.0	17.3	6.3	4.6	3.8	3.1	2.4	0.3	0.7	0.9	32	505
51-60	12.8	25.1	16.6	17.3	8.8	6.6	3.8	3.1	1.4	3.3	0.2	0.9	35	422
61-70	10.2	19.0	16.2	23.2	8.8	5.6	4.2	3.9	1.4	2.1	0.7	4.6	42	284
71-90	8.3	20.4	18.5	20.4	6.9	7.9	5.6	6.0	1.9	1.9	1.4	0.9	39	216
91-110	11.0	19.5	16.9	17.8	6.8	7.6	7.6	7.6	0.0	0.8	0.0	4.2	43	118
111-130	10.0	12.0	9.0	17.0	3.0	12.0	13.0	3.0	3.0	4.0	6.0	8.0	63	100
131-150	5.7	11.4	8.6	14.3	11.4	10.0	10.0	8.6	2.9	7.1	2.9	7.1	61	70
>151	4.6	9.9	3.8	13.0	8.4	4.6	6.1	7.6	4.6	9.2	9.2	19.1	90	131
TOTAL	54.8	23.3	9.9	6.1	1.8	1.3	0.9	0.7	0.4	0.3	0.2	0.4	15	32576

TABLE 2-4. Conditional climatology table for ap values 12 hours later. Format same as Table 2-1.

PERCENT FREQUENCY OF OCCURRENCE
CURRENT ap VS ap 12 HRS LATER (1975-86)

	ap 12 HOURS LATER													
CURRENT ap	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>151	MEAN	TOTAL
0-10	70.8	18.6	5.5	2.8	0.7	0.6	0.3	0.3	0.1	0.1	0.1	0.1	10	17856
11-20	46.4	29.0	12.7	6.7	1.8	1.0	0.7	0.7	0.3	0.3	0.2	0.2	16	7586
21-30	29.7	32.4	18.5	10.3	3.0	2.3	1.3	0.8	0.6	0.4	0.2	0.3	21	3217
31-40	21.7	29.2	18.5	15.8	5.3	3.1	2.1	1.4	0.9	0.5	0.3	1.3	27	1991
41-50	17.3	29.2	16.9	17.8	5.5	3.4	3.9	2.1	2.1	0.7	0.3	0.9	30	505
51-60	18.7	22.5	14.7	18.5	8.5	6.4	3.6	2.1	1.2	1.9	0.7	1.2	33	422
61-70	15.1	19.7	19.4	16.9	6.0	7.4	3.9	4.2	1.4	2.1	0.7	3.2	39	284
71-90	10.6	24.5	17.1	19.9	8.8	5.1	5.1	2.8	0.5	0.9	2.3	2.3	37	216
91-110	17.8	20.3	15.3	16.9	6.8	6.8	4.2	5.9	0.0	2.5	0.8	2.5	38	118
111-130	15.0	14.0	11.0	20.0	5.0	9.0	8.0	2.0	2.0	3.0	3.0	8.0	51	100
131-150	11.4	11.4	14.3	17.1	11.4	4.3	12.9	5.7	2.9	1.4	1.4	5.7	50	70
>151	8.4	11.5	9.9	12.2	4.6	5.3	7.6	6.9	5.3	6.9	9.9	11.5	74	131
TOTAL	54.8	23.3	9.9	6.1	1.8	1.3	0.9	0.7	0.4	0.3	0.2	0.4	15	32576

TABLE 2-5. Conditional climatology table for ap values 15 hours later. Format same as Table 2-1.

PERCENT FREQUENCY OF OCCURRENCE
CURRENT ap VS ap 15 HRS LATER (1975-86)

	ap 15 HOURS LATER													
CURRENT ap	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>151	MEAN	TOTAL
0-10	68.9	19.1	6.1	3.2	0.8	0.7	0.4	0.3	0.1	0.1	0.1	0.2	11	17856
11-20	47.9	28.8	11.5	6.2	2.0	1.2	0.8	0.6	0.3	0.3	0.1	0.3	16	7586
21-30	32.8	30.6	18.0	10.4	2.9	1.9	1.2	0.8	0.5	0.4	0.3	0.3	20	3217
31-40	24.9	29.1	19.5	13.4	4.2	2.5	2.6	1.0	0.8	0.7	0.4	1.1	26	1991
41-50	21.0	27.0	16.4	17.8	5.5	4.8	2.6	1.7	1.2	1.0	0.5	0.5	28	585
51-60	18.7	21.6	17.1	20.9	5.0	4.0	3.8	3.6	2.1	0.9	0.7	1.7	33	422
61-70	18.0	24.3	14.8	17.6	6.0	4.9	2.5	4.2	2.8	1.4	0.7	2.8	36	284
71-90	17.1	23.6	15.7	21.3	4.2	4.6	1.9	4.6	1.9	1.4	1.4	2.3	35	216
91-110	21.2	19.5	17.8	16.9	6.8	3.4	4.2	2.5	1.7	0.8	1.7	3.4	36	118
111-130	19.0	24.0	9.0	12.0	8.0	10.0	3.0	3.0	1.0	2.0	3.0	6.0	45	100
131-150	20.0	11.4	11.4	18.6	8.6	7.1	4.3	5.7	1.4	4.3	2.9	4.3	49	70
>151	10.7	12.2	10.7	16.8	6.1	6.9	11.5	4.6	4.6	4.6	6.1	5.3	57	131
TOTAL	54.8	23.3	9.9	6.1	1.8	1.3	0.9	0.7	0.4	0.3	0.2	0.4	15	32576

TABLE 2-6. Conditional climatology table for ap values 18 hours later. Format same as Table 2-1.

PERCENT FREQUENCY OF OCCURRENCE
CURRENT ap VS ap 18 HRS LATER (1975-86)

	ap 18 HOURS LATER													
CURRENT ap	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>151	MEAN	TOTAL
0-10	67.9	19.2	6.3	3.5	0.9	0.7	0.5	0.4	0.2	0.1	0.1	0.2	11	17856
11-20	48.5	28.0	11.7	6.4	1.9	1.1	0.8	0.6	0.3	0.3	0.2	0.3	16	7586
21-30	34.5	31.0	16.8	9.6	2.7	2.1	1.1	0.8	0.4	0.4	0.3	0.4	20	3217
31-40	26.5	30.1	18.1	13.1	3.6	2.6	1.4	1.6	0.9	0.8	0.5	0.9	25	1991
41-50	23.2	28.7	16.8	15.7	5.0	2.9	3.1	1.5	1.4	0.3	0.3	1.0	27	585
51-60	20.1	22.7	17.8	17.5	4.3	5.9	4.0	2.4	1.2	1.4	1.7	0.9	32	422
61-70	19.7	22.2	19.4	19.7	5.3	4.2	1.1	2.5	1.4	1.4	0.4	2.8	33	284
71-90	19.0	22.7	15.3	14.4	11.6	8.3	2.3	1.9	1.9	0.9	0.9	0.9	32	216
91-110	24.6	20.3	16.1	17.8	5.1	1.7	5.1	1.7	0.8	3.4	0.0	3.4	34	118
111-130	27.0	19.0	10.0	12.0	9.0	4.0	4.0	6.0	1.0	0.0	2.0	6.0	39	100
131-150	18.6	24.3	8.6	8.6	10.0	8.6	4.3	5.7	4.3	0.0	0.0	7.1	48	70
>151	19.1	9.2	13.7	14.5	7.6	6.9	9.9	3.8	3.8	3.8	3.8	3.8	48	131
TOTAL	54.8	23.3	9.9	6.1	1.8	1.3	0.9	0.7	0.4	0.3	0.2	0.4	15	32576

TABLE 2-7. Conditional climatology table for ap values 21 hours later. Format same as Table 2-1.

PERCENT FREQUENCY OF OCCURRENCE
CURRENT ap VS ap 21 HRS LATER (1975-86)

	ap 21 HOURS LATER													
CURRENT ap	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>151	MEAN	TOTAL
0-10	67.2	19.2	6.4	3.7	1.0	0.8	0.5	0.4	0.2	0.2	0.1	0.2	12	17856
11-20	48.6	27.7	11.6	6.4	1.8	1.2	0.8	0.7	0.4	0.3	0.2	0.3	16	7586
21-30	36.2	30.3	15.9	9.4	3.0	2.0	1.2	0.5	0.2	0.6	0.2	0.4	20	3217
31-40	27.0	30.7	19.3	11.7	3.6	2.0	1.6	1.5	0.9	0.8	0.3	0.8	24	1991
41-50	25.1	30.1	15.0	15.0	4.3	4.3	1.7	1.0	1.0	0.7	0.5	1.2	26	585
51-60	23.7	25.4	16.6	15.2	4.0	5.0	2.4	1.9	1.7	0.9	1.4	1.9	30	422
61-70	19.0	27.1	18.0	16.5	6.3	3.2	3.2	1.8	1.1	1.1	0.4	2.5	32	284
71-90	25.5	15.3	16.7	20.4	5.1	6.9	4.2	2.3	0.5	0.5	1.4	1.4	32	216
91-110	23.7	25.4	16.9	15.3	5.1	4.2	1.7	0.8	0.8	0.8	0.8	4.2	31	118
111-130	30.0	22.0	10.0	12.0	3.0	8.0	2.0	6.0	2.0	2.0	1.0	2.0	33	100
131-150	24.3	14.3	12.9	22.9	5.7	5.7	1.4	7.1	1.4	0.0	0.0	4.3	40	70
>151	21.4	13.0	16.8	11.5	8.4	5.3	7.6	3.1	3.8	3.1	2.3	3.8	45	131
TOTAL	54.8	23.3	9.9	6.1	1.8	1.3	0.9	0.7	0.4	0.3	0.2	0.4	15	32576

TABLE 2-8. Conditional climatology table for ap values 24 hours later. Format same as Table 2-1.

PERCENT FREQUENCY OF OCCURRENCE
CURRENT ap VS ap 24 HRS LATER (1975-86)

	ap 24 HOURS LATER													
CURRENT ap	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>151	MEAN	TOTAL
0-10	66.6	19.1	6.6	3.9	1.2	0.8	0.6	0.4	0.3	0.2	0.1	0.3	12	17856
11-20	48.8	28.0	11.0	6.3	1.6	1.3	0.9	0.8	0.4	0.3	0.3	0.3	16	7586
21-30	36.8	30.8	15.8	9.1	2.5	1.8	1.0	0.6	0.3	0.5	0.3	0.4	19	3217
31-40	30.4	28.2	18.7	12.2	3.1	2.7	1.2	1.3	0.8	0.4	0.3	0.9	23	1991
41-50	24.3	30.6	17.9	14.0	4.6	2.9	1.7	2.1	0.2	0.7	0.0	1.0	25	585
51-60	20.1	29.4	18.5	14.2	5.2	3.6	2.1	2.6	1.4	0.9	0.7	1.2	29	422
61-70	21.5	29.2	14.1	15.5	6.0	5.3	2.8	1.8	0.0	1.4	0.4	2.1	30	284
71-90	27.8	16.7	17.6	15.3	7.4	4.2	4.6	1.9	2.3	0.9	0.0	1.4	30	216
91-110	27.1	28.8	12.7	14.4	3.4	2.5	3.4	1.7	1.7	0.8	1.7	1.7	29	118
111-130	35.0	18.0	11.0	20.0	1.0	1.0	2.0	4.0	1.0	3.0	0.0	4.0	35	100
131-150	25.7	17.1	10.0	17.1	8.6	5.7	1.4	2.9	2.9	1.4	0.0	7.1	43	70
>151	27.5	13.0	16.0	12.2	7.6	6.1	4.6	3.8	2.3	2.3	3.1	1.5	38	131
TOTAL	54.8	23.3	9.9	6.1	1.8	1.3	0.9	0.7	0.4	0.3	0.2	0.4	15	32576

2-4.5 Conditional Climatology of Daily Ap. Figure 2-10 shows autocorrelation coefficients plotted against lags up to 10 days. Similar to Figure 2-6, the correlation is high for the first lag but drops to near zero after the 3rd day. If a correlation of 0.2 is used as a lower limit of useful predictability, then the current daily Ap value has little forecast value after 2 days. Correlation peaks at 27 and 54 days match multiples of the Sun's rotation period (27 days), and are a signature of recurrent geomagnetic storms caused by long-lived coronal holes and high-speed solar wind streams (Ondoh and Nakamura, 1980).

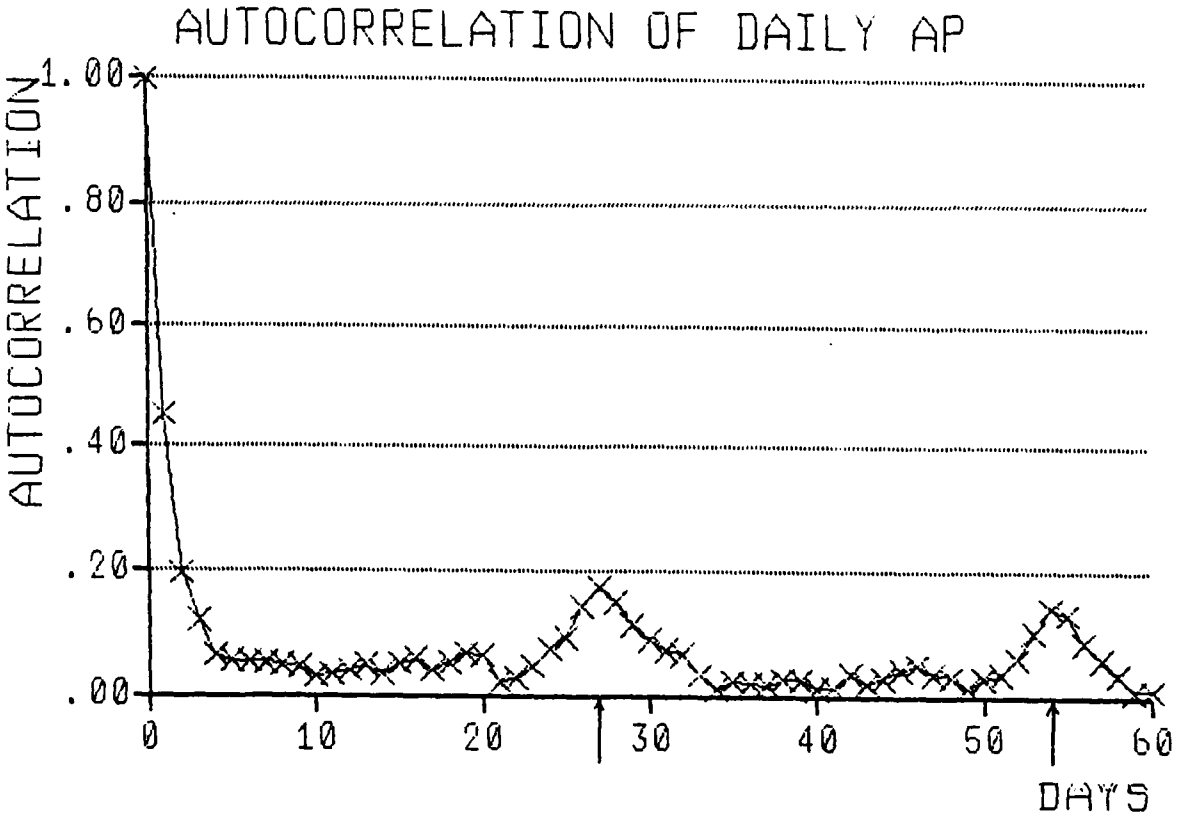


Figure 2-10. Autocorrelation of daily Ap values for lags up to 60 days.

Tables 2-9 through 2-11, on the next few pages, give conditional climatology of current daily Ap versus Ap 1, 2, and 27 days later. The table for 54 days is not shown because of its similarity to 27-day periodicity. These tables are interpreted and used in the same way as those for 3-hour ap (2-1 through 2-8).

TABLE 2-9. Conditional climatology table for Ap values 1 day later. The first 11 columns show percent frequency of occurrence for each interval of daily Ap. The last two columns give mean and total observation counts. The median interval is underlined.

PERCENT FREQUENCY OF OCCURRENCE
CURRENT AP VS AP 1 DAY LATER (1975-86)

	AP 1 DAY LATER												
CURRENT AP	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	TOTAL
0-10	49.7	21.2	5.5	2.0	0.9	0.3	0.3	0.1	0.1	0.0	0.1	10	1939
11-20	39.1	41.6	10.1	4.3	1.6	1.2	0.9	0.5	0.5	0.0	0.2	16	1234
21-30	15.3	43.0	27.4	7.4	3.8	1.7	0.2	0.2	0.2	0.0	0.6	21	470
31-40	9.6	24.1	33.7	16.0	8.0	2.7	2.7	1.1	0.5	0.5	1.1	29	187
41-50	6.3	30.2	26.0	10.4	12.5	8.3	2.1	1.0	1.0	0.0	2.1	31	96
51-60	4.2	20.8	22.9	20.8	10.4	6.3	4.2	0.0	2.1	2.1	6.3	38	48
61-70	6.9	41.4	10.3	10.3	24.1	0.0	3.4	0.0	0.0	0.0	3.4	29	29
71-80	8.3	33.3	33.3	0.0	0.0	8.3	8.3	0.0	0.0	0.0	8.3	34	12
81-90	7.7	15.4	7.7	23.1	7.7	15.4	0.0	0.0	0.0	15.4	7.7	54	13
91-100	40.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	20.0	48	5
>100	5.3	26.3	15.8	21.1	5.3	5.3	0.0	5.3	5.3	5.3	5.3	43	19
TOTAL	47.9	30.5	11.6	4.6	2.4	1.2	0.7	0.3	0.3	0.1	0.5	15	4052

TABLE 2-10. Conditional climatology table for Ap values 2 days later. Format same as Table 2-9.

PERCENT FREQUENCY OF OCCURRENCE
CURRENT AP VS AP 2 DAY LATER (1975-86)

	AP 2 DAY LATER												
CURRENT AP	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	TOTAL
0-10	58.3	25.3	8.7	3.8	1.6	0.8	0.5	0.3	0.4	0.1	0.3	13	1939
11-20	47.8	32.6	10.7	3.9	2.2	1.2	1.0	0.2	0.1	0.0	0.3	15	1234
21-30	30.4	41.1	15.1	7.4	2.8	1.5	0.4	0.2	0.4	0.0	0.6	18	470
31-40	21.9	35.3	25.1	5.9	4.8	3.2	1.1	0.0	0.5	0.0	2.1	24	187
41-50	14.6	40.6	22.9	10.4	4.2	2.1	3.1	0.0	1.0	0.0	1.0	24	96
51-60	12.5	35.4	20.8	10.4	8.3	6.3	0.0	2.1	0.0	2.1	2.1	28	48
61-70	24.1	34.5	27.6	3.4	6.9	0.0	0.0	3.4	0.0	0.0	0.0	20	29
71-80	33.3	41.7	16.7	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	17	12
81-90	7.7	30.8	30.8	7.7	7.7	0.0	0.0	0.0	7.7	7.7	0.0	34	13
91-100	20.0	40.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	32	5
>100	10.5	31.6	26.3	10.5	21.1	0.0	0.0	0.0	0.0	0.0	0.0	24	19
TOTAL	47.9	30.5	11.6	4.6	2.4	1.2	0.7	0.3	0.3	0.1	0.5	15	4052

TABLE 2-11. Conditional climatology table for Ap values 27 days later, using entire 11-year period of record. Format same as Table 2-9.

PERCENT FREQUENCY OF OCCURRENCE
CURRENT AP VS AP 27 DAY LATER (1975-86)

	AP 27 DAY LATER												
CURRENT AP	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	TOTAL
0-10	59.6	26.5	7.6	2.7	1.7	0.7	0.3	0.2	0.4	0.1	0.3	13	1939
11-20	41.8	35.7	12.9	4.5	1.9	1.0	1.1	0.6	0.0	0.1	0.5	16	1234
21-30	30.2	34.0	20.2	6.6	4.7	1.7	0.6	0.2	0.9	0.4	0.4	20	470
31-40	31.6	32.1	13.9	11.2	3.7	4.8	0.5	0.5	0.0	0.0	1.6	21	187
41-50	33.3	29.2	17.7	8.3	4.2	4.2	2.1	0.0	1.0	0.0	0.0	20	96
51-60	31.3	27.1	18.8	12.5	4.2	2.1	2.1	0.0	2.1	0.0	0.0	22	48
61-70	44.8	20.7	17.2	3.4	3.4	0.0	3.4	0.0	0.0	0.0	6.9	24	29
71-80	25.0	33.3	16.7	8.3	8.3	8.3	0.0	0.0	0.0	0.0	0.0	22	12
81-90	30.8	7.7	23.1	38.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	13
91-100	20.0	40.0	20.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	5
>100	21.1	26.3	31.6	15.8	0.0	0.0	5.3	0.0	0.0	0.0	0.0	23	19
TOTAL	48.0	30.5	11.6	4.6	2.3	1.2	0.7	0.3	0.3	0.1	0.5	15	4052

2-4.6 27-Day Lag Autocorrelation. Figure 2-11 gives monthly and yearly plots of the 27-day daily Ap autocorrelation coefficient over the entire solar cycle. Although monthly autocorrelations fluctuate greatly throughout the solar cycle, yearly autocorrelations are closer to zero near sunspot maximum than during sunspot minimum. In other words, during high solar activity the Sun is less likely to maintain the same features that affect the Earth's geomagnetic field for more than one rotation. Ondoh and Nakamura (1980) performed a similar analysis with data from three previous solar cycles (1947-1978), and found the same pattern. Unusually high geomagnetic activity in April 1985 and February 1986 (near sunspot minimum) shows, however, that exceptions occur.

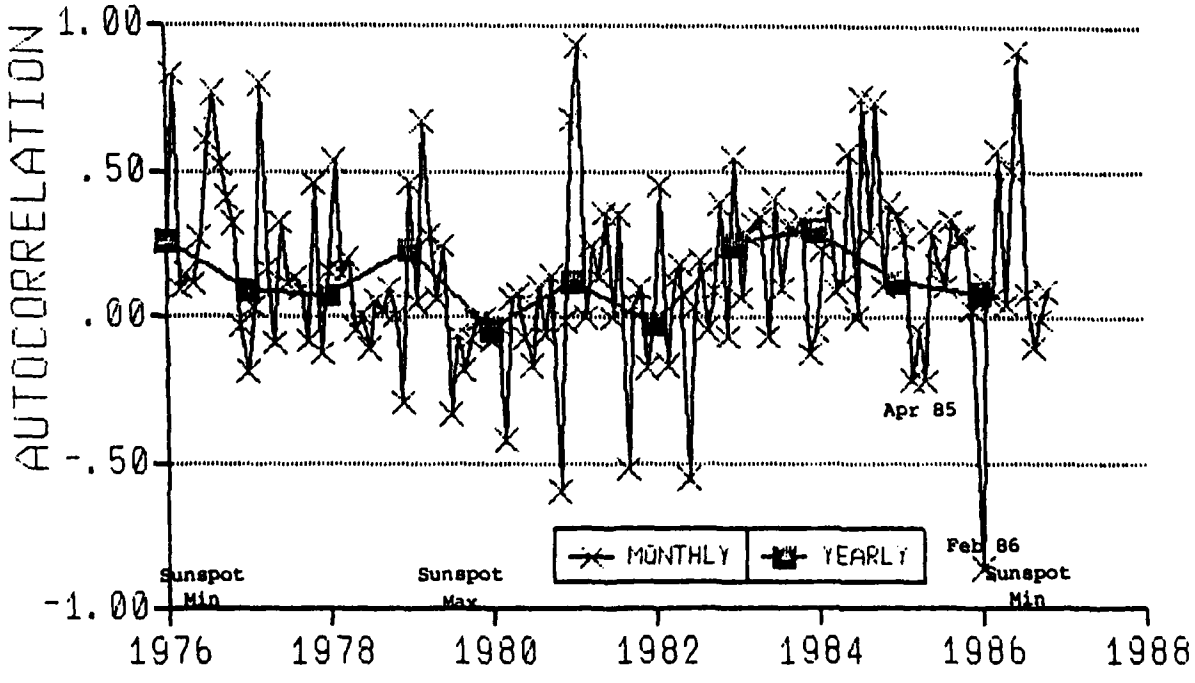


Figure 2-11. Monthly and yearly plots of 27-day lag autocorrelation coefficients.

Using the results shown in Figure 2-11, Table 2-12 was produced in the same way as Table 2-11. Table 2-12 differs from 2-11, however, in that it contains only Ap values of those months near the beginning and end of the solar cycle (1975-76 & 1983-86). Anomalous months during these periods were not included. The slightly higher percentages in Table 2-12 (compared to Table 2-11) are a result of the higher correlations, and should be more useful during quiet solar periods. However, users should be aware that cases with extremely low observation counts (i.e., interval 91-100) may not be representative of the true distribution, and should be used with caution.

TABLE 2-12. Conditional climatology table for Ap values 27 days later, using only months with autocorrelations greater than 0.19. Format same as Table 2-11.

PERCENT FREQUENCY OF OCCURRENCE
CURRENT AP VS AP 27 DAY LATER (1975-86)
MONTHS WITH >0.19 AUTOCORRELATION

	AP 27 DAY LATER												
CURRENT AP	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	TOTAL
0-10	62.5	27.1	6.0	1.5	1.4	0.6	0.4	0.0	0.1	0.1	0.1	11	715
11-20	34.0	40.0	14.4	5.4	2.5	1.4	1.2	0.4	0.0	0.0	0.6	18	485
21-30	19.2	31.8	25.3	11.1	6.1	2.0	0.5	0.5	2.0	0.5	1.0	24	198
31-40	17.5	36.3	13.8	15.0	5.0	7.5	1.3	1.3	0.0	0.0	2.5	27	80
41-50	21.7	26.1	19.6	10.9	8.7	6.5	4.3	0.0	2.2	0.0	0.0	27	46
51-60	16.7	26.7	23.3	16.7	6.7	3.3	3.3	0.0	3.3	0.0	0.0	27	30
61-70	11.1	33.3	11.1	11.1	0.0	0.0	11.1	0.0	0.0	0.0	22.2	48	9
71-80	0.0	25.0	0.0	25.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	38	4
81-90	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38	2
91-100	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39	1
>100	0.0	0.0	25.0	50.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	38	4
TOTAL	43.2	32.0	12.2	5.6	2.9	1.7	1.0	0.3	0.4	0.1	0.6	15	1574

2-5 SUMMARY. Our analysis of the Göttingen planetary geomagnetic index (Ap) was performed using data for Solar Cycle 21. A separate analysis of Ap was needed to establish a baseline for a subsequent study of the relationship between solar events and geomagnetic storming. Every 3-hour index for the 11-year period of record was used. AFGWC's Ap was not used because of inherent problems in calculating a "real-time" Ap. The dataset was analyzed with respect to: frequency of occurrence; monthly, seasonal, and yearly averages; and days per year with geomagnetic storms.

Autocorrelation results and conditional climatology tables were also discussed. Our analysis found an overall mean of 15, a 3-hour ap mode of 9, and a daily Ap mode of 6. Our time series analysis discovered 11-year, semiannual, and 27-day oscillations. All these regular cycles are not unique to Solar Cycle 21, but have been noted by many researchers of previous cycles. The conditional climatology tables in this chapter quantify some of the predictable features of Ap and can be helpful in forecasting it.

Chapter 3

THE RELATIONSHIP BETWEEN SOLAR FLARES AND GEOMAGNETIC INDEX Ap

3-1 INTRODUCTION. The link between solar events and geomagnetic storms has been the subject of considerable research that has produced several generalizations about the kinds of solar flares that produce geomagnetic disturbances. Researchers have found that the two most important features are the flare's importance (or size), and its location on the solar disk.

Bell (1961) analyzed flare data from 1937 to 1961 and found that geomagnetic storms were linked to major flares (importance 2 or greater) within 3 days after the flare event. Mikhailutsa and Gnevyshev (1985) did a more recent study with data from 1977-83 and found that geomagnetic storms were caused by solar flares of importance 1 or greater. Their analysis showed that Ap peaked between days 2 and 3 following the flare. Garcia and Dryer (1987) contend that solar flares, singly or in combination with other solar phenomena, cause geomagnetic storming about 60% of the time. Other contributing solar phenomena are coronal holes and disappearing filaments (Joselyn, 1986).

Bell (1961, 1963) and Akasofu and Yoshida (1967) established that solar flares in the central meridian sector have the greatest probability of causing intense geomagnetic storms within 3 days of the flare event. In fact, about 80% of the greatest storms were found to arise from flares located within 20 degrees of the central meridian. This research found little difference between eastern and western hemisphere flares.

Evidently, some flares are more "geo-effective" than others. This study attempts to quantify these effects by examining the average Ap values for 7 days following a flare. The particular flare characteristics of interest are importance, brightness, duration, position on the sun, and phase of the solar cycle. Conditional climatology (CC) tables of Ap for these features are shown to be very helpful in forecasting Ap. Those CC tables, and a detailed explanation of how to read and use them, are provided in the Appendices.

3-2 THE FLARE AND Ap DATABASE. The data for this study was provided by the results of the first two chapters. The Göttingen index (Ap) dataset contains more than 30,000 observations of the 3-hour value (ap) for November 1975 through December 1986. Flare data consisting of more than 27,000 optical flare reports was collected for the same period.

3-3 DATA PROCESSING. Datasets were combined and processed as follows:

- Each flare report was merged with 3-hour ap values for the following 7 days.
- Daily Ap and maximum 3-hour ap values for each 24-hour period were calculated.
- Each flare feature was evaluated by graphing the corresponding mean 24-hour Ap values for the week following the flare.
- CC tables (given in the Appendix) were developed as a function of flare characteristics.

The date and time (hour of maximum brightness) of each unique flare observation (see the first chapter for the definition of a "unique" flare) were matched to the corresponding date and time of the previous 3-hour ap period, and the following 56 ap values (7 days times eight ap values a day = 56) were recorded. A daily 24-hour Ap was calculated for those 7 days by averaging the 56 ap values into groups of eight. Similarly, a 24-hour maximum 3-hour ap was determined by finding the largest ap value for each of these seven 24-hour periods. For example, if a flare's maximum brightness was observed at 11Z, this would be matched to the 09Z ap value, and the first 24-hour Ap and maximum 3-hour ap would be determined based on the next eight 3-hour intervals (12Z through 09Z the following day). In this example, the initial 09Z ap value is not used because it was treated as occurring at the same time as the 11Z flare. As a result, each of the 27,481 flare observations are associated with a daily Ap and a maximum 3-hour ap value for each of the seven 24-hour periods following the flare.

3-4 FLARE AND Ap ANALYSIS. The mean daily Ap values for 7 days following a flare were analyzed according to five flare characteristics: *importance, brightness, duration, location on the solar disk,* and *phase of the solar cycle.* A discussion of the results for each of these features follows:

3-4.1 Importance. Figure 3-1 summarizes the geo-effectiveness of flares based on their importance (or size) characteristic.

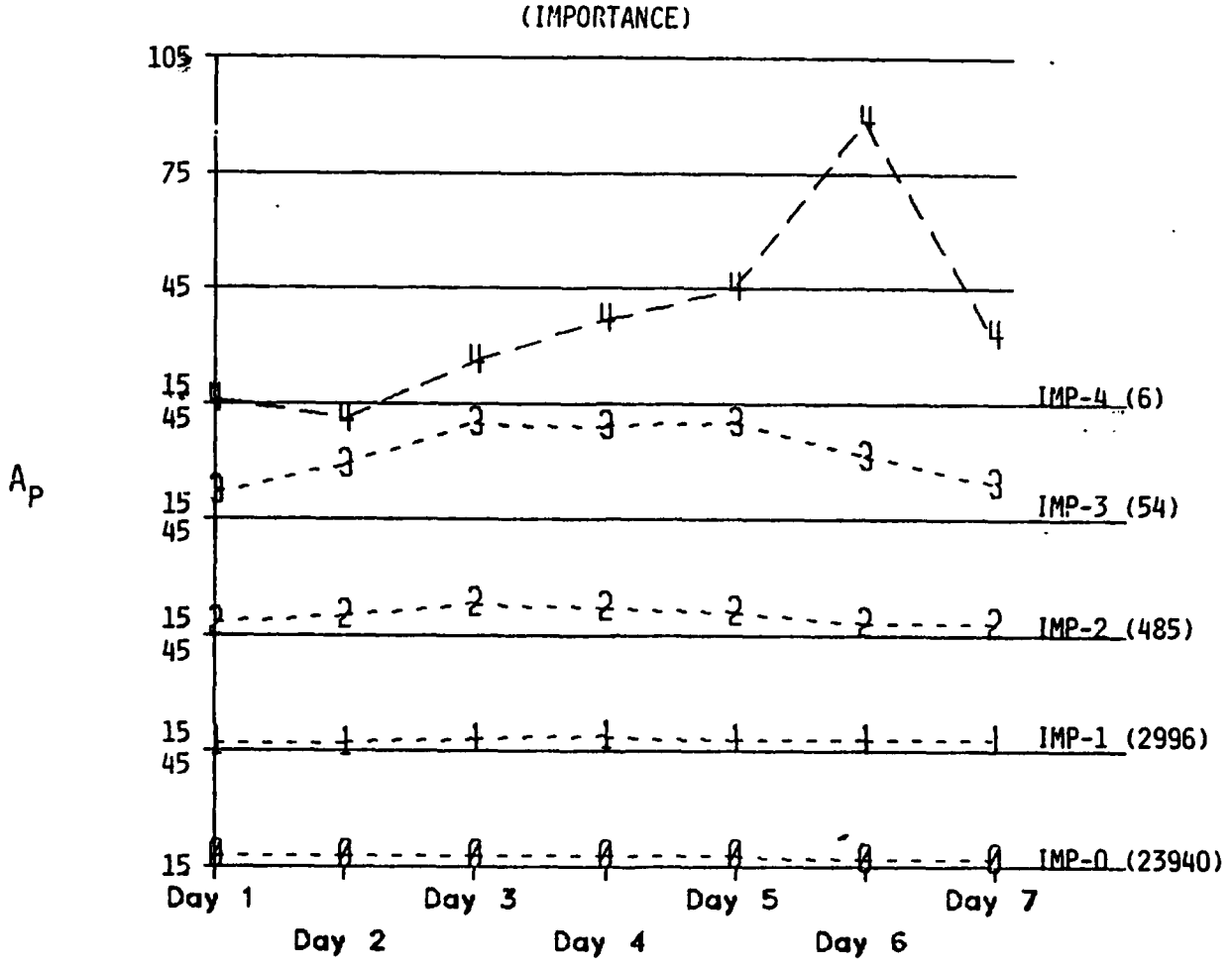


Figure 3-1. Mean daily Ap values for Days 1-7 following a flare, plotted as a function of "importance" (size). Mean daily Ap values are plotted for Days 1 through 7 after flares of 0, 1, 2, 3, and 4 importance. For convenience, the importances are plotted above each other, with the smallest flare at the bottom and the largest at the top. Sample sizes are shown in parentheses next to each importance category. The vertical axis scale for each plot begins at 15, the 11-year mean of Ap.

In general, small importance flares appear less geo-effective than those of larger importance. Importance 0 and 1 flares are associated with virtually no change in Ap, while Importance 2 flares are associated with a slight Ap peak on day 3. Importance 3 flares show a steady rise during the first 3 days, continue at elevated levels through Day 5, and return to pre-storm levels by Day 7.

Daily Ap variations associated with importance 4 flares are at the top of the graph. This plot shows a steadily rising Ap through Day 5, and an extremely large peak on Day 6 that should be viewed with caution for two reasons: the small sample size, and the very slow Sun-to-Earth travel time required for a solar flare to cause a geomagnetic storm 6 days after the event.

To compensate for the small sample size, Importance 3 and 4 flares were merged into a single category for later analyses. Recent conversations with solar-terrestrial experts (Allen/NGDC and Joselyn/Space Environmental Laboratory) revealed concern with the interpretation of elevated Ap values beyond day 5. The geomagnetic effects of a flare that occurred more than 5 days ago would require a speed of only 350 km/sec, much slower than the currently accepted values of 700 to 2,000 km/sec. This discrepancy was evaluated by closely inspecting the Ap values associated with each of the Importance 4 flares, and determining the cause of the extremely large mean Ap on Day 6. In three of the six cases, intense geomagnetic storms (Daily Ap > 125) were reported on Day 6; in each instance, Importance 2 or 3 flares were reported 2 to 3 days after the original flare. Therefore, the Ap peak on Day 6 was not necessarily linked to the original Importance 4 flare, but could be attributed to subsequent flaring a few days later. In the same way, many of the storming events after Day 3 that were associated with Importance 3 flares may also be the result of multiple flares after the original flare.

3-4.2 Brightness. Figure 3-2 shows the results of our flare "brightness" analysis.

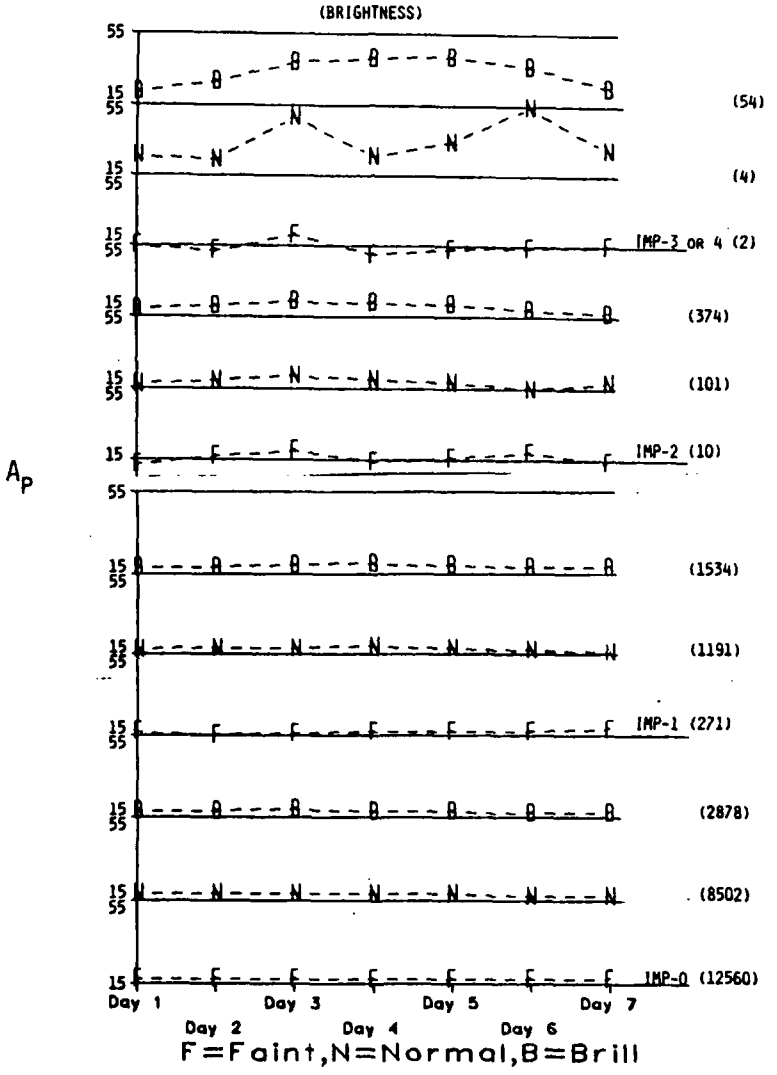


Figure 3-2. Mean daily Ap values for Days 1-7 following a flare, plotted as a function of "brightness." The format is the same as for Figure 3-1, but each level of importance is now subdivided into three "brightness" categories: faint (F), normal (N), or brilliant (B).

Regardless of brightness, there is very little effect on Ap after an Importance 0 or 1 flare. Plots of Ap associated with Importance 2 brilliant flares show slightly larger variations of Ap, but the differences between brightness categories of this importance are relatively small. The results of the analysis using Importance 3 and 4 flares together are at the top of the graph. In the case of the largest flares, faint ones show little rise in Ap, while normal and brilliant flares produce much larger Ap variations. However, results from faint and normal categories should be used with caution because of the small sample size (only two faint and four normal flares were reported).

Results of the analysis using Importance 3 and 4 flares with a brilliant category seem more reliable because there were 54 occurrences of this characteristic. These most explosive flares show a steady rise in Ap during the first 2 days and continue elevated through Day 5. Once again, use caution when interpreting results beyond Day 5; multiple flaring for several days after the original is the most likely cause of elevated Ap on Days 5-7.

3-4.3 Duration. Figure 3-3 summarizes the results of the analysis using the "duration" characteristic.

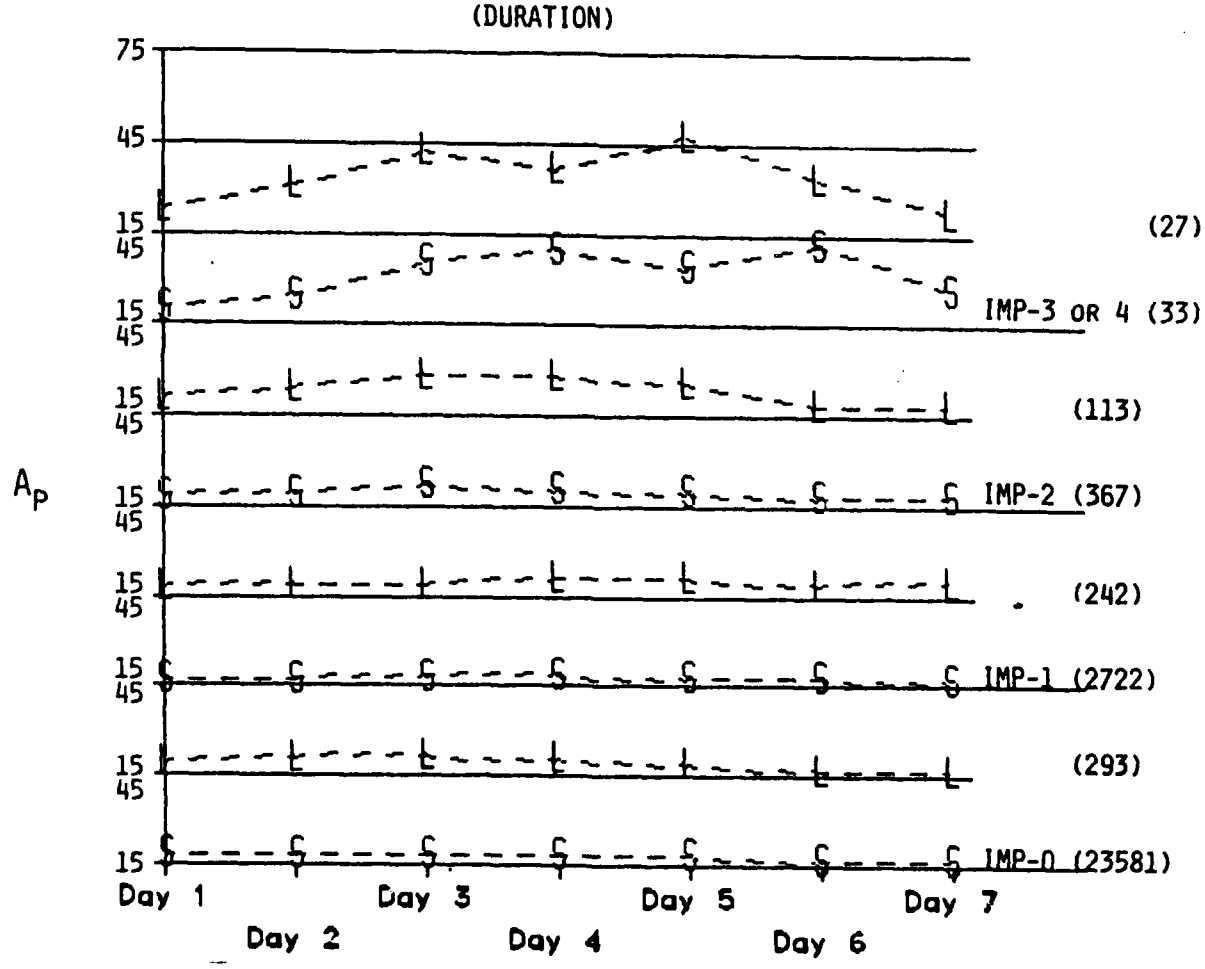


Figure 3-3. Mean daily Ap values for Days 1-7 following a flare, plotted as a function of "duration." Like the first two graphs, this one contains plots of mean daily Ap for 7 days after short (S = duration less than 100 minutes), and long (L = durations greater than or equal to 101 minutes) duration flares with the various importance categories above one another. It is apparent that long-lasting flares are generally more geo-effective than short ones. However, when the flares are large (Importance 3 or 4), both short and long duration flares result in nearly equal amplitude Ap fluctuations.

3-4.4 Location on Solar Disk. Figure 3-4 illustrates the findings of an analysis that determined how knowing the position of a flare on the solar disk affects forecasting the onset and magnitude of geomagnetic storms.

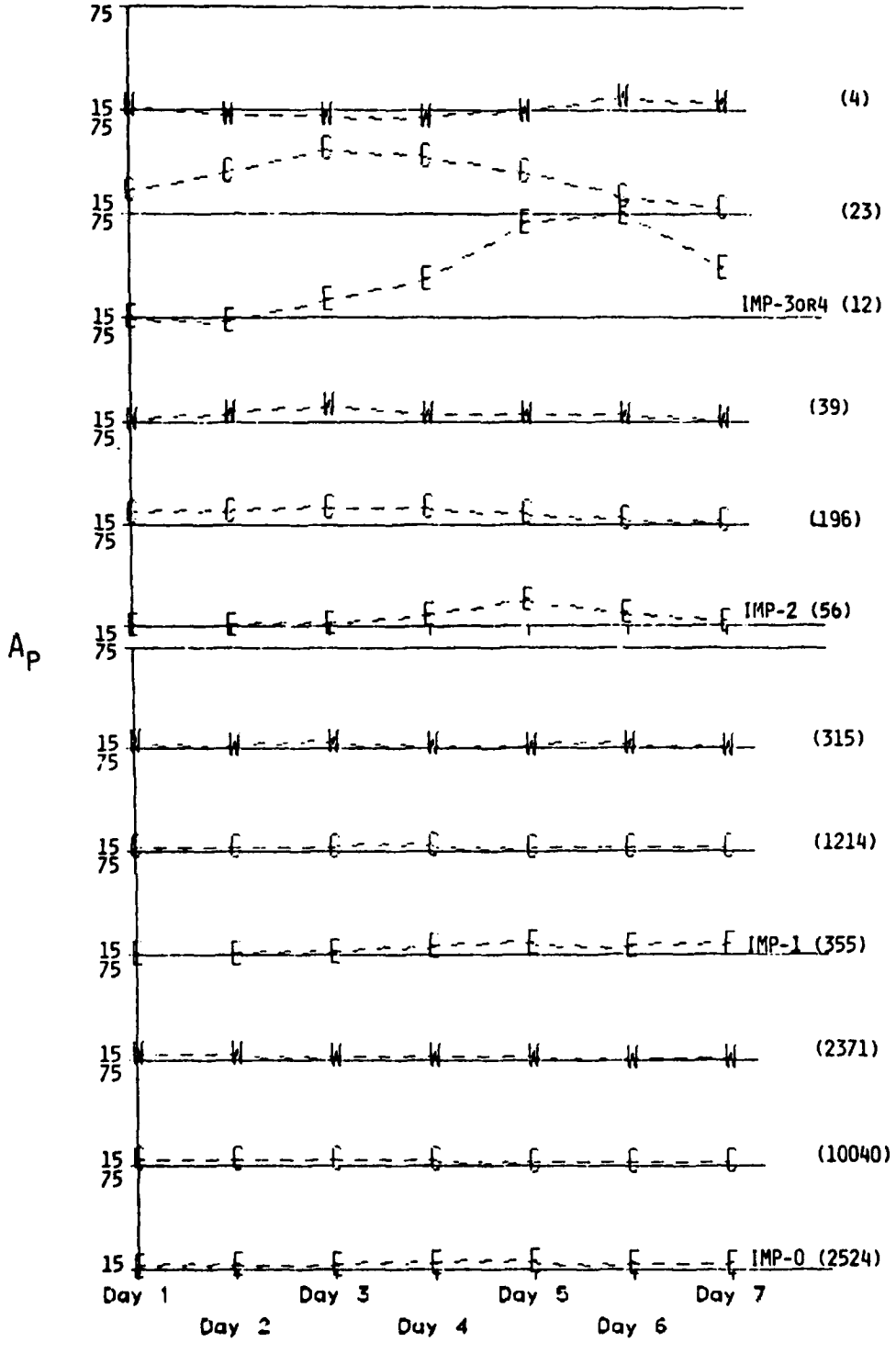


Figure 3-4. Mean daily Ap values for Days 1-7 following a flare, plotted as a function of location on the solar disk. This graph is similar to the first three in that the largest flares are at the top and the smallest at the bottom. "C" annotates flares that were positioned near the central meridian (30° E to 30° W). "E" indicates flares near the eastern limbs (60° E to 90° E), and "W" indicates western limb flares (60° W to 90° W).

Figure 3-4 shows that for flares with an importance of less than 2, there is very little difference between central flares and those near the limbs. However, larger flares (Importance 2, 3 or 4) that occur near the center of the disk start affecting the geomagnetic field within 2 days and peak in daily Ap on Day 3. In contrast, large flares occurring on the limbs affect the Ap with nearly the same amplitude as central flares, but not until Day 5 or 6. This effect is very slight for Importance 2 flares, but is much more pronounced with Importance 3 or 4 flares. This 2- to 3-day geomagnetic storming lag between central and eastern flares can be attributed to eastern limb active regions that rotate to the central part of the solar disk in a few days and produce further flaring. Subsequent flaring is generally more geo-effective because of position, and not necessarily size. Of the 12 large eastern limb flares, eight exhibited this characteristic. An example of this situation from our database follows: On 15 September 1982, an Importance 3 flare was observed at 61° E longitude; on the 7th day following, the daily Ap was more than 100. On 19 September, (4 days later) another Importance 3 flare was observed at 02° E; the daily Ap on Day 3 (7 days from the original flare) was once again greater than 100.

3-4.5 Phase of Solar Cycle. Chapters 1 and 2 described a large 11-year variation in both yearly mean Ap and the number of flare reports. That data is shown in Figure 3-5 as yearly percentages of the entire 11-year cycle for the number of 0, 1, 2, 3 or 4 importance flares, and for the number of days of elevated Ap conditions (i.e., those with daily Ap greater than 40). The total numbers of storming days, or flares, are shown in parentheses next to each plot.

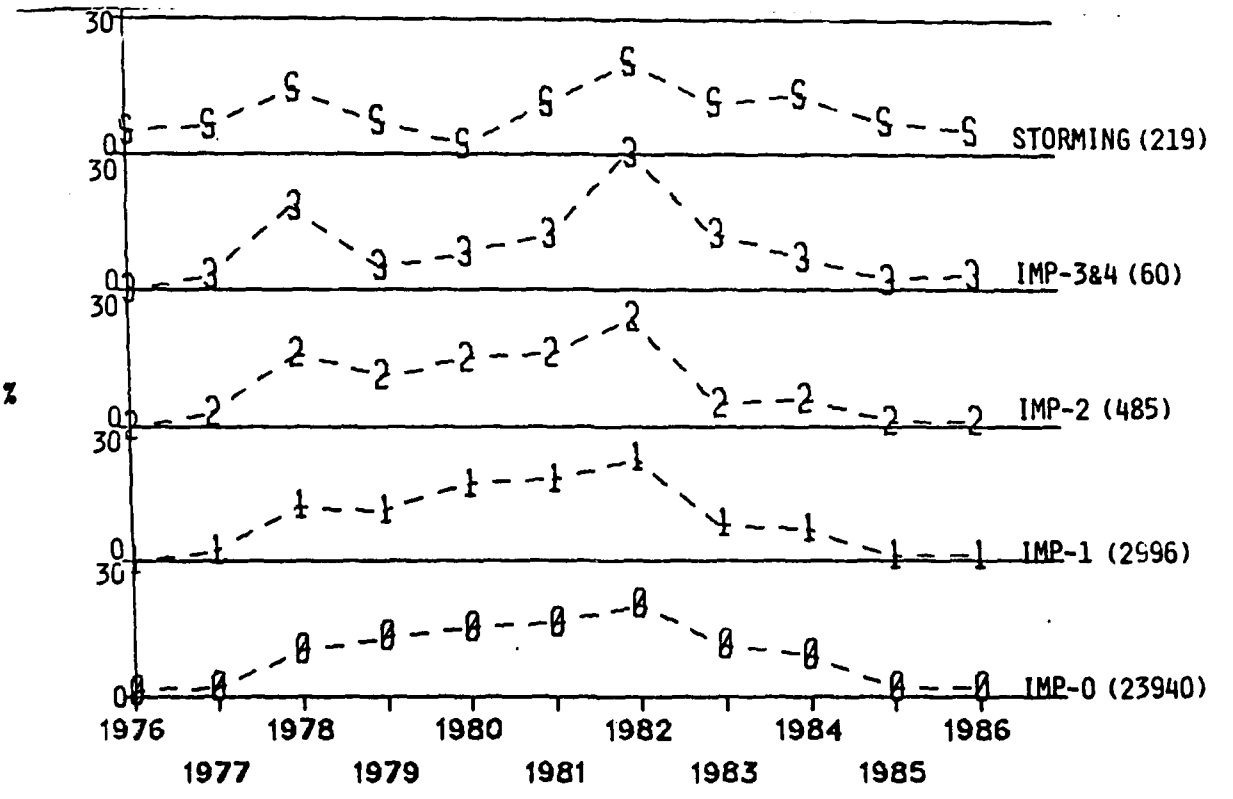


Figure 3-5. Yearly percentages, with respect to the entire 11-year POR, of the number of flare reports and geomagnetic storming days (Ap greater than 40) are plotted for Solar Cycle 21 as a function of importance.

Percentages associated with Importance 0 flares are at the bottom of the graph, larger flares above, and moderate storming days at the top. For example, of the 60 Importance 3 and 4 flares occurring in Solar Cycle 21, 30% (or 18 flares) were reported in 1982. Similarly, there were 219 storming days during this 11-year period; 44 of them (20%) occurred in 1982. The chart shows that the geomagnetic storming peak in 1982 was accompanied by corresponding yearly peaks in all importance categories. On the other hand, the largest flares (Importance 3 or 4) have peaks and valleys that are similar to the geomagnetic storming peak in 1978 and the subsequent quiet geomagnetic field in 1980. Once again, our analysis presents evidence that large flares are more closely associated with geomagnetic storming than small flares.

3-5 SUMMARY. Solar flare reports were merged with 7 days of 3-hour ap values for the period 1975 to 1986. The resulting data was then analyzed for five optical flare characteristics: *importance, brightness, duration, position on the disk*, and *phase of the solar cycle*.

Mean daily Ap results were graphically summarized. Our analysis showed that of the five features studied, *importance* is the most useful optical flare feature in predicting Ap. Large-importance flares are more geo-effective than small-importance flares. Daily Ap rises steadily for the first 2 days after a large flare, peaks on Day 3, continues to be elevated through Day 5, and returns to pre-storm levels by day 7. The next best precursors of flare-induced geomagnetic storms seem to be the flare's longitude and duration. Large flares observed in the center of the disk are generally more geo-effective on Day 3 than flares on the limbs. However, our analysis of Ap for an entire week following a flaring event showed that large eastern limb flares give the false impression of being equally geo-effective on Days 5 or 6. This illusion seems to be the result of an eastern active region rotating to a more favorable (in terms of geomagnetic storming) position on the disk and producing another flare. Two-thirds of the large eastern limb flares showed this characteristic. Large flares of long duration tend to be more geo-effective on Day 3 than those with short durations. This effect is apparent but subtle for smaller flares. The brightness category was the least important characteristic.

A complete set of conditional climatology tables, based on the relationship between solar flares and Ap, is provided in Appendix B. Instructions for interpretation and use of the tables are provided in Appendix A.

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APPENDIX A

HOW TO INTERPRET AND USE THE TABLES

CONTENTS. The conditional climatology (CC) tables provided in Appendix B are based on the relationship between solar flares and Ap. This appendix tells how to read, understand, and use those tables in producing an Ap forecast. The tables are in six sections:

- •Importance alone (Tables 1 & 2)
- •Brightness Vs Importance (Tables 3-11)
- •Duration Vs Importance (Tables 12-20)
- •Longitude Vs Importance (Tables 21-29)
- •Latitude Vs Importance (Tables 30-38)
- •Year Vs Importance (Tables 39-47)

THE TABLES EXPLAINED. The results of our analysis of the relationship between solar flares and Ap are summarized in three *types* of CC tables:

- •Percent frequency distributions of daily Ap
- •Percent frequency distributions of maximum 3-hour ap
- •Mean values of daily Ap and maximum 3-hour ap

Although each type of table shows the results in a slightly different way, they all describe how the geomagnetic field (Ap) varies for Day 1 through Day 7 after a flare of importance 0 through 4. Examples and explanations of each type of table are given below.

Table 1 shows the percent frequency distribution of daily Ap, mean daily Ap, and the number of occurrences for each type of importance. The group of 7 rows entitled "Imp 2" gives the behavior of daily Ap for 7 days following Importance 2 flares. The "Flare Count" column indicates that there were 485 observations, and the "Mean" column depicts the average Ap. On Day 1, 44.3% of the daily Ap values were between 0 and 10, 28.2% of the values were between 11 and 20, and so on across the "Day 1" row. The "Day 2" row indicates the distribution of daily Ap on the second day following Importance 2 flare. The distribution and mean for days 3 through 7 are found in the same way. The underlined interval of each row indicates the median; about half the values lie above this interval, and half below. The "mode" is defined as the interval in each row with the largest percentage, and can be easily determined from the table. As will be shown later, either mean, median, or mode could be used as a basis for an Ap forecast.

Table 2 uses the same format as Table 1, but summarizes maximum 3-hour ap values instead of daily Ap values.

Table 3 contains columns for mean values of daily Ap, maximum 3-hour ap, and the number of flare reports for each 7-day permutation. Totals for each condition are also given. The intersection of column "Imp 1", and a group of rows "Normal" gives the mean values for "1N" flares. The "Flare Count" column shows that there were 1,191 "1N" flares during the last solar cycle. The "Day Ap" column and "Day 1" row indicate that the average daily Ap for the first 24 hours after a "1N" flare is 17. The mean daily Ap for the second 24-hour period is 18. Mean values for Days 3 through 7 are determined in the same way. The average maximum 3-hour ap is found in column "3HR Ap". The table shows that the maximum 3-hour ap for the first 24 hours after a "1N" flare is 36. The maximum 3-hour ap for the next 24-hour period is also 36. Remember that these Ap values (both daily and 3-hour) are the result of *averaging*, and that they may not be representative of the actual day-to-day geomagnetic fluctuation.

AP FORECASTING TECHNIQUES. Chapter 3 concludes that, of the 5 features analyzed, *importance* (or size) was the best optical flare characteristic for determining the geo-effectiveness of a flare. Given that the importance of a flare is the only known characteristic, the tables in Appendix B can be used to determine a daily Ap and maximum 3-hour ap forecast for the 7 days following. The forecast can be made by selecting the mean (average), median (50% above and below interval) or mode (interval with largest percentage); only experience will eventually determine the best one to choose.

The three methods are best explained with a recent example. On 23 March 1989 at 2000Z, a "3B" (importance = 3 and brightness = brilliant) flare was observed. If the importance category were the only condition used, and if the middle value of median or modal interval were chosen, then three different Ap forecasts based on Tables 1-2 might be:

Importance 3, Sample Size 54:

Mean Values:

Days after flare:	1	2	3	4	5	6	7
Forecast Ap/Max ap:	32/49	29/61	40/80	39/73	40/79	31/59	24/50
Observed Ap/Max ap:	25/62	10/20	17/34	26/64	35/55	48/82	41/66
Total 7-day difference:	97/172						

Median Values:

Days after flare:	1	2	3	4	5	6	7
Forecast Ap/Max ap:	15/25	15/35	25/55	35/55	25/45	15/35	15/25
Observed Ap/Max ap:	25/62	10/20	17/34	26/64	35/55	48/82	41/66
Total 7-day difference:	101/180						

Mode Values:

Days after flare:	1	2	3	4	5	6	7
Forecast Ap/Max ap:	5/15	5/15	15/151	35/35	15/25	15/25	5/15
Observed Ap/Max ap:	25/62	10/20	17/34	26/64	35/55	48/82	41/66
Total 7-day difference:	125/336						

After comparing the observed (AFGWC's estimated) Ap with the forecast Ap values, it was apparent that the median and mean methods showed nearly the same accuracy, while the modal method was the worst of the three.

If more flare characteristics were used to predict Ap, a better forecast would result. Other possible conditions are: *duration, longitude, latitude,* and *phase of the solar cycle.* Unfortunately, as additional features are included, the sample size decreases, and more random fluctuations are added into the results. An example of a forecast with additional conditions is given below. The "3B" flare mentioned above was located at 28° W, had a duration of 174 minutes, and was reported in a year of "rising" solar activity. The mean daily Ap and maximum 3-hour ap values can be found by using Tables 12, 21, and 39. These forecasts could be:

Importance 3, Duration 174 min, Sample Size 17:

Days after flare:	1	2	3	4	5	6	7
Forecast Ap/Max ap:	25/59	38/82	48/87	38/65	38/76	27/51	19/40
Observed Ap/Max ap:	25/62	10/20	17/34	26/64	35/55	48/82	41/66
Total 7-day difference:	117/197						

Importance 3, Longitude 28° W, Sample Size 22:

Days after flare:	1	2	3	4	5	6	7
Forecast Ap/Max ap:	29/64	41/82	53/99	50/90	40/76	26/53	19/41
Observed Ap/Max ap:	25/62	10/20	17/34	26/64	35/55	48/82	41/66
Total 7-day difference:	144/230						

Importance 3, Phase of Solar Cycle (Rise), Sample Size 14:

Days after flare:	1	2	3	4	5	6	7
Forecast Ap/Max ap:	21/59	34/72	42/88	47/83	34/71	25/49	18/46
Observed Ap/Max ap:	25/62	10/20	17/34	26/64	35/55	48/82 4	1/66
Total 7-day difference:	135/197						

Comparing the last three forecasts with observed values shows that a forecast using duration information is better than forecasts with longitude or phase of solar cycle, but that it continues to fall short of the forecast that was based only on importance.

This example was chosen to demonstrate "multiple flaring," an inherent shortfall of this technique. In all six forecast methods above, the Ap was forecast to peak on Day 3 or 4; in actuality, the geomagnetic field was most disturbed on Day 6. For several days following this 23 March 1989 flare, a few additional moderately sized flares were also observed; these probably contributed more to the geomagnetic storming on Day 6 (29 March) than the original flare on 23 March. The tables of the "Year Vs Importance" section (Tables 39 to 47) can be used to simulate this situation. These tables consider the fluctuations of Ap associated with different parts of the 11-year solar cycle, and to some extent, multiple flares caused by persistent or multiple activity on the Sun. If the Sun is relatively quiet and the year is near the beginning of the solar cycle, the "Minimum" category may be chosen. If the sun is relatively active, however (regardless of the year), the "Maximum" category will be best. In the example above, March 1989 was during the "Rising" phase of the solar cycle, but since the Sun was unusually active then, the "Maximum" category might be the more appropriate condition. A forecast based on Table 39 might be:

Importance 3, Phase of Solar Cycle (Maximum), Sample Size 25:

Days after flare:	1	2	3	4	5	6	7
Forecast Ap/Max ap:	23/48	22/51	33/68	34/67	44/86	39/71	30/57
Observed Ap/Max ap:	25/62	10/20	17/34	26/64	35/55	48/82	41/66
Total 7-day difference:	67/143						

The most accurate forecast for the above example resulted from choosing the mean values of CC tables that had the conditions of Importance 3 and maximum phase of the solar cycle. In another instance, importance and longitude (or duration) might be the best predictor, as suggested by the results described in Chapter 3. In any case, since these tables lack the ability to determine the real cause-and-effect relationship, they should only be used as a guide to the actual production of a forecast.

Exercise caution in using CC tables with very low observation counts.

Note that the test forecasts described here had the advantage of hindsight, a luxury not permitted when the tables are used operationally. Combined with experience, however, forecasts from these tables should be adequate, especially when considering trends away from the long-term mean.

APPENDIX B

CONDITIONAL CLIMATOLOGY TABLES

TABLE 1. Importance Vs. Daily Ap Distribution for All Importance Flares.

		DAILY AP											
		PERCENT FREQUENCY OF OCCURRENCE											
IMPORTANCE	DAYS AFTER	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
IMP 0	DAY 1	43.4	30.1	12.6	6.3	3.3	1.6	0.8	0.7	0.3	0.2	0.8	18	23940
	DAY 2	42.2	30.6	13.0	6.6	3.3	1.8	0.7	0.7	0.3	0.2	0.8	18	
	DAY 3	42.9	30.2	12.5	6.7	3.4	1.8	0.7	0.5	0.2	0.2	0.8	18	
	DAY 4	42.1	30.4	13.0	6.6	3.7	1.7	0.8	0.7	0.3	0.3	0.6	19	
	DAY 5	41.6	30.8	13.1	6.5	3.6	1.7	0.9	0.6	0.3	0.2	0.6	18	
	DAY 6	42.4	30.6	13.6	6.2	3.5	1.6	0.8	0.5	0.2	0.1	0.5	17	
	DAY 7	42.3	32.0	13.7	5.3	3.2	1.5	0.7	0.6	0.2	0.1	0.5	17	
IMP 1	DAY 1	42.4	31.3	12.4	6.4	3.3	1.5	0.8	0.4	0.4	0.2	0.7	17	2996
	DAY 2	42.8	30.6	11.7	7.2	4.2	1.2	0.7	0.6	0.1	0.2	0.7	17	
	DAY 3	40.7	30.4	13.7	6.6	3.7	2.1	0.9	0.6	0.2	0.4	0.8	18	
	DAY 4	40.4	31.0	12.6	6.7	4.4	1.8	1.0	0.5	0.4	0.3	1.0	19	
	DAY 5	39.1	31.6	13.9	6.7	4.1	2.0	1.0	0.5	0.2	0.2	0.7	18	
	DAY 6	40.9	32.5	12.7	5.1	3.7	2.0	1.2	0.9	0.4	0.1	0.6	18	
	DAY 7	41.6	32.1	12.4	5.8	3.7	1.8	0.8	0.8	0.2	0.1	0.6	18	
IMP 2	DAY 1	44.3	29.2	11.5	6.6	4.7	1.4	1.2	0.4	0.4	0.0	1.0	18	485
	DAY 2	37.7	30.1	13.4	9.7	3.7	1.6	1.6	0.2	0.4	0.2	1.2	20	
	DAY 3	33.0	27.6	14.8	10.1	6.2	2.7	1.4	1.0	0.4	0.8	1.9	23	
	DAY 4	33.4	29.7	15.1	7.6	5.6	3.9	1.0	1.4	0.2	0.4	1.6	22	
	DAY 5	33.6	33.0	15.9	6.8	4.9	1.9	0.8	1.0	0.2	0.6	1.2	21	
	DAY 6	39.2	33.2	11.5	5.8	5.6	2.1	1.4	0.8	0.0	0.0	0.4	18	
	DAY 7	41.6	31.1	10.7	8.2	3.7	1.9	1.6	0.8	0.0	0.0	0.2	18	
IMP 3	DAY 1	40.7	24.1	5.6	11.1	5.6	5.6	3.7	3.7	0.0	0.0	0.0	22	54
	DAY 2	33.3	18.5	11.1	14.8	9.3	1.9	1.9	0.0	0.0	0.0	9.3	29	
	DAY 3	18.5	20.4	16.7	11.1	9.3	3.7	7.4	1.9	0.0	1.9	9.3	40	
	DAY 4	13.0	14.8	13.0	22.2	11.1	14.8	3.7	0.0	0.0	0.0	7.4	39	
	DAY 5	14.8	24.1	20.4	5.6	16.7	9.3	0.0	0.0	1.9	0.0	7.4	40	
	DAY 6	24.1	29.6	9.3	9.3	9.3	3.7	1.9	5.6	0.0	3.7	3.7	31	
	DAY 7	37.0	22.2	18.5	7.4	5.6	0.0	5.6	1.9	0.0	0.0	1.9	24	
IMP 4	DAY 1	66.7	0.0	16.7	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	16	6
	DAY 2	33.3	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	
	DAY 3	33.3	0.0	33.3	16.7	0.0	0.0	16.7	0.0	0.0	0.0	0.0	26	
	DAY 4	33.3	16.7	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	16.7	37	
	DAY 5	16.7	33.3	0.0	0.0	0.0	16.7	0.0	0.0	33.3	0.0	0.0	45	
	DAY 6	16.7	16.7	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	50.0	89	
	DAY 7	0.0	50.0	16.7	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	33	
TOTAL	DAY 1	43.3	30.2	12.6	6.3	3.3	1.6	0.9	0.7	0.3	0.2	0.8	18	27481
	DAY 2	42.1	30.5	12.9	6.7	3.4	1.7	0.7	0.7	0.3	0.2	0.8	18	
	DAY 3	42.5	30.1	12.7	6.8	3.5	1.8	0.8	0.5	0.2	0.3	0.8	18	
	DAY 4	41.7	30.4	13.0	6.7	3.8	1.8	0.8	0.7	0.3	0.3	0.7	18	
	DAY 5	41.2	30.9	13.2	6.5	3.7	1.8	0.9	0.6	0.3	0.2	0.7	18	
	DAY 6	42.2	30.8	13.4	6.1	3.5	1.7	0.8	0.6	0.2	0.1	0.5	17	
	DAY 7	42.2	31.9	13.5	5.4	3.2	1.5	0.8	0.6	0.2	0.1	0.5	17	

TABLE 2. Importance Vs Maximum 3-Hour ap Distribution for All Importance Flares.

IMPORTANCE	DAYS AFTER	MAXIMUM 3-HOUR AP — PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150	MEAN	FLARE COUNT
IMP 0	DAY 1	15.3	26.2	17.9	15.6	5.4	4.9	3.7	3.4	2.4	1.3	1.3	2.6	36	23940
	DAY 2	15.3	25.7	17.5	16.0	5.8	5.0	3.9	3.5	2.3	1.2	1.1	2.7	36	
	DAY 3	15.5	25.8	19.2	15.1	5.6	4.9	4.0	3.8	2.1	1.4	1.1	2.6	36	
	DAY 4	14.9	25.5	18.4	16.0	5.6	4.8	3.9	3.5	2.3	1.3	1.3	2.6	36	
	DAY 5	14.8	25.3	18.8	15.9	5.3	4.7	4.0	3.6	2.4	1.2	1.4	2.6	36	
	DAY 6	14.9	25.9	18.3	16.4	5.6	4.7	3.9	3.5	2.0	1.4	1.2	2.1	35	
	DAY 7	14.9	25.9	18.0	16.9	5.9	4.1	3.4	3.4	2.2	1.2	1.1	2.2	35	
IMP 1	DAY 1	15.7	25.5	16.8	16.5	5.2	5.5	3.7	3.5	2.2	1.4	1.5	2.5	36	2996
	DAY 2	14.9	26.2	18.6	14.6	5.2	5.4	3.9	3.8	2.6	1.6	1.0	2.1	36	
	DAY 3	14.9	24.8	17.8	14.6	5.8	5.2	4.5	4.2	2.7	1.9	0.9	2.6	38	
	DAY 4	12.2	26.1	17.7	17.6	5.5	4.6	3.8	3.9	2.6	1.6	1.0	3.4	39	
	DAY 5	13.1	24.7	17.6	14.9	6.6	5.2	3.8	3.8	2.2	2.0	1.9	2.3	38	
	DAY 6	13.1	26.3	19.5	17.1	6.2	4.0	3.4	3.3	2.1	1.7	1.6	2.7	37	
	DAY 7	13.5	26.4	19.9	15.9	5.6	4.3	3.3	3.2	2.4	1.4	1.7	2.5	36	
IMP 2	DAY 1	14.6	27.8	15.5	16.7	5.6	3.7	3.3	4.1	3.1	1.9	1.6	2.1	37	485
	DAY 2	11.5	23.1	19.4	14.4	4.5	6.2	4.7	5.0	2.9	1.4	2.3	3.5	43	
	DAY 3	11.5	20.8	15.7	15.7	5.4	6.2	5.6	4.9	3.1	3.7	2.7	4.7	47	
	DAY 4	12.8	19.4	16.5	17.9	7.8	4.5	3.5	4.7	4.1	2.5	1.4	4.7	45	
	DAY 5	7.6	23.5	20.4	15.7	7.6	6.4	5.8	3.5	3.3	2.1	1.2	3.7	43	
	DAY 6	11.8	25.4	22.1	15.7	6.2	3.9	3.7	3.1	2.1	2.1	1.9	2.3	36	
	DAY 7	13.8	26.6	18.1	15.5	5.6	4.7	4.5	3.1	2.5	2.1	1.0	2.5	36	
IMP 3	DAY 1	9.3	33.3	14.8	5.6	1.9	5.6	5.6	11.1	1.9	0.0	5.6	5.6	49	54
	DAY 2	14.8	18.5	13.0	7.4	3.7	3.7	9.3	11.1	1.9	1.9	1.9	13.0	61	
	DAY 3	7.4	11.1	11.1	11.1	7.4	5.6	1.9	9.3	7.4	3.7	7.4	16.7	80	
	DAY 4	3.7	9.3	9.3	11.1	9.3	7.4	7.4	9.3	9.3	9.3	5.6	9.3	73	
	DAY 5	3.7	13.0	14.8	13.0	7.4	3.7	9.3	9.3	5.6	7.4	1.9	11.1	79	
	DAY 6	7.4	13.0	24.1	14.8	1.9	3.7	7.4	7.4	1.9	1.9	9.3	7.4	59	
	DAY 7	3.7	24.1	22.2	11.1	5.6	11.1	5.6	0.0	3.7	3.7	0.0	9.3	50	
IMP 4	DAY 1	0.0	66.7	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	37	6
	DAY 2	16.7	16.7	50.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	
	DAY 3	33.3	0.0	0.0	33.3	0.0	0.0	0.0	16.7	0.0	0.0	0.0	16.7	64	
	DAY 4	16.7	16.7	16.7	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	16.7	64	
	DAY 5	0.0	16.7	16.7	16.7	0.0	0.0	0.0	0.0	0.0	0.0	16.7	33.3	113	
	DAY 6	0.0	0.0	16.7	16.7	0.0	0.0	16.7	0.0	0.0	0.0	0.0	50.0	150	
	DAY 7	0.0	16.7	33.3	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	33.3	81	
TOTAL	DAY 1	15.3	26.2	17.7	15.7	5.3	4.9	3.7	3.4	2.4	1.4	1.3	2.6	36	27481
	DAY 2	15.2	25.7	17.7	15.8	5.7	5.1	3.9	3.6	2.4	1.3	1.1	2.6	37	
	DAY 3	15.3	25.6	19.1	15.0	5.6	4.9	4.1	3.9	2.2	1.5	1.1	2.7	37	
	DAY 4	14.6	25.4	18.2	16.2	5.7	4.8	3.9	3.6	2.3	1.4	1.3	2.7	37	
	DAY 5	14.4	25.2	18.9	15.8	5.5	4.8	4.0	3.6	2.4	1.3	1.5	2.6	37	
	DAY 6	14.6	25.9	18.4	16.5	5.6	4.6	3.8	3.5	2.1	1.4	1.3	2.2	35	
	DAY 7	14.7	26.0	19.1	16.7	5.7	4.1	3.4	3.3	2.2	1.3	1.1	2.3	35	

TABLE 3. Brightness Vs. Mean Ap and Flare Count for All Importance Flares.

		MEAN DAILY AP AND MAXIMUM 3-HOUR AP															
		IMP 0			IMP 1			IMP 2			IMP 3			IMP 4			TOTAL		
BRIGHTNESS	DAYS AFTER	DAY AP	3HR AP	FLARE COUNT	DAY AP	3HR AP	FLARE COUNT	DAY AP	3HR AP	FLARE COUNT	DAY AP	3HR AP	FLARE COUNT	DAY AP	3HR AP	FLARE COUNT	DAY AP	3HR AP	FLARE COUNT
FAINT	DAY 1	17	35	12560	17	35	271	12	26	10	0	0	0	15	25	2	17	35	12843
	DAY 2	17	36		15	32		17	48		0	0		12	20		17	36	
	DAY 3	17	35		16	32		20	37		0	0		21	45		17	35	
	DAY 4	17	36		17	36		14	30		0	0		10	21		17	36	
	DAY 5	17	36		17	36		16	29		0	0		13	27		17	36	
	DAY 6	17	35		17	37		19	36		0	0		14	27		17	35	
	DAY 7	17	34		18	35		14	28		0	0		15	23		17	34	
NORMAL	DAY 1	18	37	3502	17	36	1191	17	35	101	32	53	3	9	12	1	18	37	9798
	DAY 2	18	37		18	36		19	41		27	53		13	22		18	37	
	DAY 3	18	37		18	37		22	43		57	113		21	39		18	37	
	DAY 4	18	37		19	38		20	37		24	57		34	44		18	37	
	DAY 5	18	37		18	36		18	37		16	31		88	236		18	37	
	DAY 6	17	36		17	36		15	31		14	28		172	300		17	36	
	DAY 7	17	35		16	34		18	39		19	49		62	154		17	35	
BRILLIANT	DAY 1	18	37	2878	18	37	1534	19	38	374	22	48	51	20	53	3	18	37	4840
	DAY 2	18	37		18	37		21	43		29	62		10	26		18	38	
	DAY 3	19	39		19	39		24	49		39	74		32	55		19	40	
	DAY 4	18	38		20	41		23	47		40	74		56	97		19	40	
	DAY 5	18	39		19	39		22	45		41	81		52	129		19	39	
	DAY 6	17	35		18	37		19	36		32	61		111	162		18	37	
	DAY 7	17	36		18	38		17	35		24	51		35	96		18	37	
**********	*****	***	***	*****	***	***	*****	***	***	*****	***	***	*****	***	***	*****	***	***	*****
TOTAL	DAY 1	18	36	23940	17	36	2996	18	37	485	22	49	54	16	37	6	18	36	27481
	DAY 2	18	36		17	36		20	43		29	61		11	23		18	37	
	DAY 3	18	36		18	38		23	47		40	80		26	64		18	37	
	DAY 4	18	36		19	39		22	45		39	73		37	64		18	37	
	DAY 5	18	36		18	38		21	43		40	79		45	113		18	37	
	DAY 6	17	35		18	37		18	36		31	59		89	150		17	35	
	DAY 7	17	35		18	36		18	36		24	50		33	81		17	35	

TABLE 4. Brightness Vs Daily Ap Distribution for 0 Importance Flares.

BRIGHTNESS	DAYS AFTER	DAILY AP — PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
FAINT	DAY 1	44.1	30.5	12.4	6.0	2.9	1.3	0.8	0.7	0.3	0.2	0.8	17	12560
	DAY 2	43.1	30.8	12.6	6.2	3.2	1.5	0.6	0.7	0.3	0.2	0.8	17	
	DAY 3	43.7	30.2	12.5	6.4	3.2	1.6	0.7	0.6	0.2	0.3	0.7	17	
	DAY 4	42.9	30.1	13.0	6.5	3.5	1.7	0.8	0.7	0.3	0.2	0.5	17	
	DAY 5	42.1	31.3	12.8	6.1	3.5	1.6	0.9	0.6	0.3	0.2	0.6	17	
	DAY 6	42.9	30.8	13.4	6.0	3.3	1.7	0.7	0.5	0.2	0.1	0.4	17	
	DAY 7	42.9	32.2	13.4	4.9	3.1	1.3	0.7	0.6	0.2	0.1	0.5	17	
NORMAL	DAY 1	42.3	29.8	13.0	6.4	3.6	1.9	0.9	0.7	0.3	0.3	0.8	18	9502
	DAY 2	40.8	30.2	13.9	6.9	3.5	2.0	0.6	0.6	0.4	0.2	0.7	18	
	DAY 3	42.2	30.0	12.9	6.9	3.3	2.0	0.8	0.4	0.3	0.2	0.6	18	
	DAY 4	40.9	30.9	13.1	6.7	3.9	1.7	0.5	0.6	0.3	0.4	0.6	18	
	DAY 5	41.1	30.8	13.3	6.8	3.7	1.8	1.0	0.5	0.2	0.2	0.6	18	
	DAY 6	41.7	30.3	14.1	6.4	3.5	1.5	0.8	0.7	0.2	0.2	0.5	17	
	DAY 7	41.5	31.5	14.1	5.8	3.3	1.5	0.7	0.6	0.2	0.2	0.5	17	
BRILLIANT	DAY 1	43.2	29.2	12.3	6.7	3.7	1.6	0.8	0.9	0.3	0.3	0.8	18	2878
	DAY 2	42.0	30.6	12.1	7.3	2.9	2.0	0.9	0.6	0.4	0.3	0.8	18	
	DAY 3	41.8	30.6	11.6	7.3	3.3	1.9	0.9	0.7	0.2	0.3	1.2	19	
	DAY 4	41.8	30.2	12.6	6.7	3.9	1.7	0.9	0.8	0.2	0.3	0.9	18	
	DAY 5	41.1	29.0	13.7	7.4	3.7	2.0	1.1	0.8	0.1	0.3	0.8	18	
	DAY 6	42.6	30.5	12.9	6.6	3.5	1.9	0.7	0.4	0.3	0.1	0.5	17	
	DAY 7	41.6	32.1	13.3	5.2	3.1	2.2	0.8	0.7	0.3	0.1	0.5	17	
TOTAL	DAY 1	43.4	30.1	12.6	6.3	3.3	1.6	0.9	0.7	0.3	0.2	0.8	18	23940
	DAY 2	42.2	30.6	13.0	6.6	3.3	1.8	0.7	0.7	0.3	0.2	0.9	18	
	DAY 3	42.9	30.2	12.5	6.7	3.4	1.8	0.7	0.5	0.2	0.2	0.8	18	
	DAY 4	42.1	30.4	13.0	6.6	3.7	1.7	0.8	0.7	0.3	0.3	0.6	18	
	DAY 5	41.6	30.8	13.1	6.5	3.6	1.7	0.9	0.6	0.3	0.2	0.6	18	
	DAY 6	42.4	30.6	13.6	6.2	3.5	1.6	0.8	0.5	0.2	0.1	0.5	17	
	DAY 7	42.3	32.0	13.7	5.3	3.2	1.5	0.7	0.6	0.2	0.1	0.5	17	

TABLE 5. Brightness Vs Maximum 3-Hour ap Distribution for 0 Importance Flares.

BRIGHTNESS	DAYS AFTER	MAXIMUM 3-HOUR AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150	MEAN	FLARE COUNT
FAINT	DAY 1	15.6	26.6	18.3	15.8	5.3	4.6	3.5	3.2	2.3	1.3	1.2	2.5	35	12560
	DAY 2	15.7	25.9	17.6	16.5	5.7	4.6	3.6	3.4	2.3	1.0	1.0	2.5	36	
	DAY 3	15.8	26.3	18.2	15.1	5.5	4.9	3.9	3.6	2.0	1.3	1.0	2.4	35	
	DAY 4	15.1	26.5	17.6	16.2	5.2	4.8	3.9	3.5	2.2	1.4	1.1	2.5	36	
	DAY 5	15.2	25.2	19.0	16.2	5.2	4.6	3.7	3.4	2.4	1.1	1.3	2.7	36	
	DAY 6	15.3	26.3	18.3	16.2	5.4	4.8	3.8	3.5	2.0	1.3	1.0	2.0	35	
	DAY 7	15.4	26.0	19.2	16.9	5.7	4.2	3.3	3.2	2.1	1.1	0.9	2.2	34	
NORMAL	DAY 1	14.9	25.8	17.4	15.6	5.6	5.1	4.0	3.6	2.3	1.4	1.5	2.8	37	8502
	DAY 2	14.9	25.2	17.0	15.7	6.0	5.4	4.1	3.8	2.5	1.4	1.2	2.8	37	
	DAY 3	15.2	25.3	17.8	15.5	5.5	4.9	4.1	4.2	2.4	1.4	1.1	2.5	37	
	DAY 4	14.6	24.2	19.3	15.9	6.1	4.9	3.8	3.5	2.4	1.3	1.5	2.7	37	
	DAY 5	14.2	25.5	16.7	15.8	5.2	4.9	4.3	3.7	2.5	1.3	1.5	2.4	37	
	DAY 6	14.2	25.6	18.4	16.7	5.8	4.7	4.0	3.5	2.1	1.4	1.2	2.3	36	
	DAY 7	14.6	25.4	18.9	16.8	6.0	4.2	3.4	3.6	2.5	1.2	1.1	2.3	35	
BRILLIANT	DAY 1	15.1	25.6	17.2	15.2	4.8	5.4	3.9	3.7	3.1	1.5	1.4	2.6	37	2874
	DAY 2	14.4	26.2	18.8	14.3	5.4	5.6	4.6	3.3	1.9	1.7	1.1	2.8	37	
	DAY 3	14.5	25.2	19.6	13.6	6.1	5.0	4.4	3.4	1.9	1.5	1.4	3.5	39	
	DAY 4	15.0	24.6	19.9	15.6	6.0	4.6	4.2	3.4	2.2	1.3	1.5	2.8	39	
	DAY 5	14.4	24.6	18.6	15.3	6.0	4.6	4.5	3.8	2.4	1.3	1.9	2.7	38	
	DAY 6	15.4	25.5	18.0	16.5	5.6	4.3	3.5	3.6	2.1	1.6	1.7	2.1	35	
	DAY 7	13.6	26.8	18.9	16.9	5.6	3.4	3.6	3.5	2.0	1.7	1.8	2.3	36	
TOTAL	DAY 1	15.3	26.2	17.9	15.6	5.4	4.9	3.7	3.4	2.4	1.3	1.3	2.6	36	23940
	DAY 2	15.3	25.7	17.5	16.0	5.9	5.0	3.9	3.5	2.3	1.2	1.1	2.7	36	
	DAY 3	15.5	25.8	18.2	15.1	5.6	4.9	4.0	3.8	2.1	1.4	1.1	2.6	36	
	DAY 4	14.9	25.5	18.4	16.0	5.6	4.8	3.9	3.5	2.3	1.3	1.3	2.6	36	
	DAY 5	14.8	25.3	18.8	15.9	5.3	4.7	4.0	3.6	2.4	1.2	1.4	2.6	36	
	DAY 6	14.9	25.9	18.3	16.4	5.6	4.7	3.9	3.5	2.0	1.4	1.2	2.1	35	
	DAY 7	14.9	25.9	19.0	16.9	5.9	4.1	3.4	3.4	2.2	1.2	1.1	2.2	35	

TABLE 6. Brightness Vs Daily Ap Distribution for 1 Importance Flares.

BRIGHTNESS	DAYS AFTER	DAILY Ap PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
FAINT	DAY 1	43.5	31.7	13.7	4.4	2.6	1.4	1.1	0.0	0.0	0.0	1.1	17	271
	DAY 2	48.0	29.9	12.2	4.4	3.7	0.7	0.0	0.7	0.0	0.4	0.0	15	
	DAY 3	42.1	32.5	14.0	5.2	3.0	3.0	0.4	0.0	0.0	0.0	0.0	16	
	DAY 4	47.2	27.7	14.4	4.8	2.2	1.5	0.4	0.0	0.7	0.0	1.1	17	
	DAY 5	43.5	30.3	13.3	5.9	2.6	1.5	0.4	1.1	0.0	0.4	1.1	17	
	DAY 6	40.2	35.8	10.7	4.8	1.8	1.8	1.8	2.2	0.7	0.0	0.0	17	
	DAY 7	39.9	36.2	11.8	4.8	4.1	1.8	0.0	0.0	0.4	0.0	1.1	18	
NORMAL	DAY 1	43.6	31.1	12.2	6.5	2.2	1.9	1.0	0.4	0.3	0.4	0.4	17	1191
	DAY 2	43.5	30.2	11.9	6.3	4.4	1.3	0.8	0.7	0.0	0.2	0.8	18	
	DAY 3	42.8	29.1	13.3	6.4	2.9	2.4	0.7	0.8	0.3	0.4	0.8	19	
	DAY 4	41.5	31.4	12.2	6.5	3.9	1.5	0.6	0.5	0.3	0.3	1.3	19	
	DAY 5	39.5	32.3	13.9	5.7	4.5	1.8	1.3	0.3	0.1	0.3	0.4	18	
	DAY 6	41.6	33.7	11.9	4.7	3.2	1.8	1.0	1.1	0.3	0.2	0.7	17	
	DAY 7	44.2	31.6	12.3	4.6	3.5	1.4	0.9	0.6	0.3	0.2	0.3	16	
BRILLIANT	DAY 1	41.3	31.4	12.5	6.8	4.4	1.1	0.7	0.5	0.5	0.1	0.8	18	1534
	DAY 2	41.3	31.1	11.4	8.4	4.2	1.3	0.7	0.6	0.2	0.1	0.7	18	
	DAY 3	38.8	31.0	13.9	7.0	4.5	1.8	1.2	0.5	0.2	0.4	0.9	19	
	DAY 4	38.3	31.2	12.6	7.3	5.1	2.0	1.4	0.6	0.3	0.3	0.8	20	
	DAY 5	38.1	31.3	14.0	7.6	4.1	2.2	0.8	0.5	0.3	0.2	0.9	19	
	DAY 6	40.4	30.9	13.7	5.4	4.4	2.3	1.2	0.5	0.5	0.1	0.7	18	
	DAY 7	39.8	31.8	12.6	6.9	3.8	2.1	0.9	1.0	0.2	0.1	0.7	18	
TOTAL	DAY 1	42.4	31.3	12.4	6.4	3.3	1.5	0.8	0.4	0.4	0.2	0.7	17	2996
	DAY 2	42.8	30.6	11.7	7.2	4.2	1.2	0.7	0.6	0.1	0.2	0.7	17	
	DAY 3	40.7	30.4	13.7	6.6	3.7	2.1	0.9	0.6	0.2	0.4	0.8	18	
	DAY 4	40.4	31.0	12.6	6.7	4.4	1.8	1.0	0.5	0.4	0.3	1.0	19	
	DAY 5	39.1	31.6	13.9	6.7	4.1	2.0	1.0	0.5	0.2	0.2	0.7	18	
	DAY 6	40.9	32.4	12.7	5.1	3.7	2.0	1.2	0.9	0.4	0.1	0.6	18	
	DAY 7	41.6	32.1	12.4	5.8	3.7	1.8	0.8	0.8	0.2	0.1	0.6	18	

TABLE 7. Brightness Vs Maximum 3-Hour ap Distribution for 1 Importance Flares.

BRIGHTNESS	DAYS AFTER	MAXIMUM 3-HOUR AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150	MEAN	FLARE COUNT
FAINT	DAY 1	16.2	27.7	18.5	13.7	5.9	5.2	1.8	5.2	1.5	1.5	0.7	2.2	35	271
	DAY 2	13.7	30.3	20.7	14.4	5.9	4.1	2.6	1.8	2.2	1.9	1.1	1.5	32	
	DAY 3	14.8	30.6	14.8	15.9	5.2	5.5	3.3	3.3	2.6	3.0	0.7	0.4	32	
	DAY 4	12.9	34.7	13.1	17.7	4.4	4.8	0.4	4.1	3.3	1.1	0.4	3.0	36	
	DAY 5	19.2	23.6	18.6	12.9	8.5	2.6	2.6	3.0	2.6	1.1	1.8	3.3	36	
	DAY 6	14.4	24.4	21.0	17.0	7.0	3.3	2.2	2.8	1.8	1.1	2.2	3.7	37	
	DAY 7	15.5	26.2	17.3	17.0	7.7	2.6	3.0	4.4	1.8	1.1	1.8	1.5	35	
NORMAL	DAY 1	16.5	25.8	16.5	17.0	4.4	5.5	3.6	2.9	2.2	1.5	1.8	2.4	36	1191
	DAY 2	16.4	25.4	13.0	14.4	5.1	5.2	3.9	4.0	2.3	1.7	1.5	2.0	36	
	DAY 3	17.4	23.9	16.5	14.8	6.0	5.0	3.6	4.3	2.8	2.0	1.3	2.4	37	
	DAY 4	12.3	28.0	17.1	17.0	5.4	4.7	3.9	3.8	2.2	1.4	0.8	3.3	38	
	DAY 5	12.7	25.0	19.6	15.7	6.5	5.7	3.4	4.2	1.8	2.0	1.8	1.6	36	
	DAY 6	12.1	27.7	20.2	16.2	5.0	4.3	3.3	3.7	1.9	1.1	1.5	3.0	36	
	DAY 7	13.9	27.5	19.9	16.5	5.9	4.2	2.4	3.1	1.8	1.3	1.4	2.3	34	
BRILLIANT	DAY 1	15.1	24.8	16.8	16.6	5.7	5.5	4.0	3.7	2.4	1.4	1.4	2.5	37	1534
	DAY 2	14.0	26.1	19.7	14.8	5.1	5.8	4.2	4.0	2.9	1.5	0.7	2.3	37	
	DAY 3	13.0	24.5	19.3	14.2	5.7	5.2	5.5	4.3	2.7	1.7	0.7	3.2	39	
	DAY 4	12.0	23.1	18.9	17.9	5.8	4.5	4.3	3.9	2.9	1.9	1.2	3.6	41	
	DAY 5	12.4	24.6	19.6	14.5	6.4	5.2	4.4	3.6	2.3	2.2	2.1	2.6	39	
	DAY 6	13.6	25.6	16.8	17.7	6.9	4.0	3.7	3.3	2.3	2.2	1.6	2.3	37	
	DAY 7	12.9	25.6	20.4	15.1	5.0	4.8	4.1	3.0	2.9	1.6	1.8	2.9	39	
TOTAL	DAY 1	15.7	25.5	16.8	16.5	5.2	5.5	3.7	3.5	2.2	1.4	1.5	2.5	36	2996
	DAY 2	14.9	26.2	18.6	14.6	5.2	5.4	3.9	3.8	2.6	1.6	1.0	2.1	36	
	DAY 3	14.9	24.8	17.8	14.6	5.8	5.2	4.5	4.2	2.7	1.9	0.9	2.6	38	
	DAY 4	12.2	26.1	17.7	17.6	5.5	4.6	3.8	3.9	2.6	1.6	1.0	3.4	39	
	DAY 5	13.1	24.7	19.6	14.9	6.6	5.2	3.8	3.8	2.2	2.0	1.9	2.3	38	
	DAY 6	13.1	26.3	18.5	17.1	6.2	4.0	3.4	3.3	2.1	1.7	1.6	2.7	37	
	DAY 7	13.5	26.4	19.9	15.8	5.6	4.3	3.3	3.2	2.4	1.4	1.7	2.5	36	

TABLE 8. Brightness Vs Daily Ap Distribution for 2 Importance Flares.

BRIGHTNESS	DAYS AFTER	DAILY AP — PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
FAINT	DAY 1	70.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	10
	DAY 2	30.0	50.0	10.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	17	
	DAY 3	30.0	50.0	10.0	0.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	20	
	DAY 4	70.0	10.0	10.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	14	
	DAY 5	40.0	30.0	20.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	
	DAY 6	30.0	40.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	19	
	DAY 7	60.0	20.0	10.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	14	
NORMAL	DAY 1	52.5	26.7	5.0	7.9	5.0	1.0	1.0	0.0	0.0	0.0	1.0	17	101
	DAY 2	40.6	29.7	10.9	8.9	4.0	2.0	3.0	0.0	1.0	0.0	0.0	19	
	DAY 3	36.6	26.7	16.8	9.9	2.0	3.0	1.0	1.0	0.0	2.0	1.0	22	
	DAY 4	36.6	34.7	14.9	5.0	2.0	3.0	0.0	1.0	1.0	0.0	2.0	20	
	DAY 5	39.6	34.7	15.8	3.0	4.0	0.0	0.0	0.0	0.0	1.0	2.0	18	
	DAY 6	44.6	33.7	9.9	5.0	5.9	1.0	0.0	0.0	0.0	0.0	0.0	15	
	DAY 7	43.6	26.7	8.9	11.9	3.0	1.0	4.0	1.0	0.0	0.0	0.0	18	
BRILLIANT	DAY 1	41.4	29.1	13.4	6.1	4.8	1.6	1.3	0.5	0.5	0.0	1.1	19	374
	DAY 2	37.2	29.7	14.2	10.2	3.7	1.3	1.3	0.3	0.3	0.3	1.6	21	
	DAY 3	32.1	27.5	14.4	10.4	7.2	2.4	1.6	1.1	0.5	0.5	2.1	24	
	DAY 4	31.6	28.9	15.2	8.6	6.7	4.0	1.3	1.6	0.0	0.5	1.6	23	
	DAY 5	31.8	32.6	15.8	7.8	5.3	2.4	1.1	1.3	0.3	0.5	1.1	22	
	DAY 6	38.0	32.9	12.0	5.9	5.3	2.4	1.9	1.1	0.0	0.0	0.5	19	
	DAY 7	40.6	32.6	11.2	7.5	3.7	2.1	1.1	0.8	0.0	0.0	0.3	17	
TOTAL	DAY 1	44.3	28.2	11.5	6.6	4.7	1.4	1.2	0.4	0.4	0.0	1.0	18	485
	DAY 2	37.7	30.1	13.4	9.7	3.7	1.6	1.6	0.2	0.4	0.2	1.2	20	
	DAY 3	33.0	27.6	14.8	10.1	6.2	2.7	1.4	1.0	0.4	0.9	1.9	23	
	DAY 4	33.4	29.7	15.1	7.6	5.6	3.9	1.0	1.4	0.2	0.4	1.6	22	
	DAY 5	33.6	33.0	15.9	6.8	4.9	1.9	0.8	1.0	0.2	0.6	1.2	21	
	DAY 6	39.2	33.2	11.5	5.8	5.6	2.1	1.4	0.8	0.0	0.0	0.4	19	
	DAY 7	41.6	31.1	10.7	8.2	3.7	1.9	1.6	0.8	0.0	0.0	0.2	18	

TABLE 9. Brightness Vs Maximum 3-Hour ap Distribution for 2 Importance Flares.

BRIGHTNESS	DAYS AFTER	MAXIMUM 3-HOUR AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150	MEAN	FLARE COUNT
FAINT	DAY 1	30.0	20.0	20.0	20.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	26	10
	DAY 2	10.0	10.0	40.0	20.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	10.0	48	
	DAY 3	20.0	0.0	30.0	20.0	10.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	37	
	DAY 4	20.0	30.0	30.0	0.0	10.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	30	
	DAY 5	10.0	20.0	20.0	20.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	
	DAY 6	10.0	30.0	10.0	20.0	10.0	0.0	10.0	0.0	10.0	0.0	0.0	0.0	36	
	DAY 7	20.0	40.0	10.0	10.0	10.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	28	
NORMAL	DAY 1	17.8	30.7	12.9	16.8	5.0	1.0	1.0	4.0	4.0	4.0	1.0	2.0	35	101
	DAY 2	12.9	25.7	14.9	19.8	2.0	4.0	2.0	5.0	5.0	3.0	3.0	3.0	41	
	DAY 3	14.9	27.7	2.9	14.9	12.9	4.0	2.0	5.9	0.0	3.0	2.0	5.0	43	
	DAY 4	13.9	25.7	17.8	17.8	7.9	5.9	2.0	1.0	3.0	0.0	1.0	4.0	37	
	DAY 5	9.9	25.7	19.8	17.8	8.9	6.9	3.0	3.0	2.0	0.0	0.0	3.0	37	
	DAY 6	14.9	24.8	26.7	16.8	5.0	2.0	2.0	3.0	2.0	1.0	0.0	2.0	31	
	DAY 7	17.8	27.7	11.9	12.9	5.0	5.0	6.9	1.0	3.0	3.0	1.0	5.0	39	
BRILLIANT	DAY 1	13.4	27.3	16.0	16.6	5.9	4.5	4.0	4.3	2.7	1.3	1.9	2.1	38	374
	DAY 2	11.2	22.7	20.1	12.8	5.3	7.0	5.6	6.1	2.4	1.1	2.1	3.5	43	
	DAY 3	10.4	19.5	17.4	15.8	3.2	7.0	6.4	4.8	4.0	3.7	2.9	4.8	49	
	DAY 4	12.3	17.4	15.8	14.4	7.8	4.3	4.0	5.9	4.5	2.9	1.6	5.1	47	
	DAY 5	7.0	23.0	20.9	15.0	6.7	6.4	6.7	3.7	2.4	2.7	1.6	4.0	45	
	DAY 6	11.0	25.4	21.1	15.2	6.4	4.5	4.0	3.2	1.9	2.4	2.4	2.4	38	
	DAY 7	12.6	25.9	20.1	16.3	5.6	4.8	4.0	3.7	2.1	1.9	1.1	1.9	35	
TOTAL	DAY 1	14.6	27.8	15.5	16.7	5.6	3.7	3.3	4.1	3.1	1.9	1.6	2.1	37	485
	DAY 2	11.5	23.1	19.4	14.4	4.5	6.2	4.7	6.0	2.9	1.4	2.3	3.5	43	
	DAY 3	11.5	20.8	15.7	15.1	5.4	6.2	5.6	4.9	3.1	3.7	2.7	4.7	47	
	DAY 4	12.8	19.4	16.5	17.9	7.8	4.5	3.5	4.7	4.1	2.5	1.4	4.7	45	
	DAY 5	7.6	23.5	20.6	15.7	7.6	6.4	5.8	3.5	2.3	2.1	1.2	3.7	43	
	DAY 6	11.8	25.4	22.1	15.7	6.2	3.9	3.7	3.1	2.1	2.1	1.9	2.3	36	
	DAY 7	13.8	26.6	16.1	15.5	5.6	4.7	4.5	3.1	2.5	2.1	1.0	2.5	36	

TABLE 10. Brightness Vs Daily Ap Distribution for 3 or 4 Importance Flares.

BRIGHTNESS	DAYS AFTER	DAILY AP — PERCENT FREQUENCY OF OCCURRENCE											MEAN	FLARE COUNT
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
FAINT	DAY 1	50.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	2
	DAY 2	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	
	DAY 3	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	
	DAY 4	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	
	DAY 5	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	
	DAY 6	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	
	DAY 7	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	
NORMAL	DAY 1	25.0	0.0	50.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	26	4
	DAY 2	25.0	25.0	25.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	24	
	DAY 3	0.0	25.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	48	
	DAY 4	25.0	25.0	0.0	25.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	26	
	DAY 5	0.0	50.0	25.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	34	
	DAY 6	25.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	54	
	DAY 7	25.0	0.0	50.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	30	
BRILLIANT	DAY 1	44.4	24.1	1.9	11.1	5.6	5.6	3.7	3.7	0.0	0.0	0.0	22	54
	DAY 2	33.3	22.2	9.3	14.8	7.4	1.9	1.9	0.0	0.0	0.0	9.3	28	
	DAY 3	20.4	18.5	16.7	11.1	9.3	3.7	9.3	1.9	0.0	1.9	7.4	39	
	DAY 4	13.0	13.0	13.0	24.1	11.1	13.0	3.7	0.0	0.0	0.0	9.3	41	
	DAY 5	16.7	20.4	18.5	5.6	16.7	11.1	0.0	0.0	3.7	0.0	7.4	42	
	DAY 6	22.2	27.8	7.4	11.1	9.3	3.7	1.9	5.6	0.0	3.7	7.4	37	
	DAY 7	35.2	24.1	16.7	7.4	5.6	0.0	7.4	1.9	0.0	0.0	1.9	25	
TOTAL	DAY 1	43.3	21.7	6.7	10.0	6.7	5.0	3.3	3.3	0.0	0.0	0.0	22	60
	DAY 2	33.3	23.3	10.0	13.3	8.3	1.7	1.7	0.0	0.0	0.0	8.3	28	
	DAY 3	20.0	18.3	18.3	11.7	8.3	3.3	8.3	1.7	0.0	1.7	8.3	39	
	DAY 4	15.0	15.0	11.7	23.3	10.0	13.3	3.3	0.0	0.0	0.0	8.3	39	
	DAY 5	15.0	25.0	18.3	5.0	15.0	10.0	0.0	0.0	5.0	0.0	6.7	40	
	DAY 6	23.3	28.3	8.3	10.0	8.3	3.3	1.7	5.0	0.0	3.3	8.3	37	
	DAY 7	33.3	25.0	18.3	6.7	5.0	0.0	8.3	1.7	0.0	0.0	1.7	25	

TABLE 11. Brightness Vs Maximum 3-Hour ap Distribution for 3 or 4 Importance Flares.

BRIGHTNESS	DAYS AFTER	MAXIMUM 3-HOUR AP — PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150	MEAN	FLARE COUNT
FAINT	DAY 1	0.0	50.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	2
	DAY 2	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	
	DAY 3	50.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	45	
	DAY 4	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	
	DAY 5	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	
	DAY 6	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	
	DAY 7	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	
NORMAL	DAY 1	0.0	25.0	0.0	25.0	0.0	25.0	0.0	25.0	0.0	0.0	0.0	0.0	47	4
	DAY 2	0.0	25.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	45	
	DAY 3	0.0	0.0	25.0	25.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	25.0	94	
	DAY 4	0.0	0.0	25.0	25.0	25.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	55	
	DAY 5	0.0	0.0	25.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	82	
	DAY 6	0.0	25.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	96	
	DAY 7	0.0	25.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	25.0	75	
BRILLIANT	DAY 1	9.3	37.0	14.8	3.7	1.9	3.7	5.6	9.3	1.9	0.0	7.4	5.6	48	54
	DAY 2	16.7	16.7	14.8	5.6	5.6	3.7	9.3	11.1	1.9	0.0	1.9	13.0	60	
	DAY 3	9.3	11.1	9.3	13.0	7.4	5.6	1.9	7.4	7.4	3.7	7.4	16.7	79	
	DAY 4	5.6	9.3	7.4	9.3	11.1	7.4	7.4	9.3	9.3	7.4	5.6	11.1	75	
	DAY 5	3.7	14.8	13.0	9.3	7.4	3.7	9.3	9.3	5.6	7.4	3.7	13.0	84	
	DAY 6	7.4	11.1	22.2	13.0	1.9	3.7	9.3	7.4	1.9	1.9	9.3	11.1	68	
	DAY 7	3.7	22.2	24.1	11.1	5.6	11.1	1.9	0.0	3.7	5.6	0.0	11.1	53	
TOTAL	DAY 1	8.3	36.7	13.3	6.7	1.7	5.0	5.0	10.0	1.7	0.0	6.7	5.0	47	60
	DAY 2	15.0	18.3	16.7	6.7	5.0	3.3	8.3	10.0	1.7	1.7	1.7	11.7	57	
	DAY 3	10.0	10.0	10.0	13.3	6.7	5.0	1.7	10.0	6.7	3.3	6.7	16.7	79	
	DAY 4	5.0	10.0	10.0	10.0	11.7	6.7	6.7	8.3	8.3	8.3	5.0	10.0	72	
	DAY 5	3.3	13.3	15.0	13.3	6.7	3.3	8.3	8.3	5.0	6.7	3.3	13.3	82	
	DAY 6	6.7	11.7	23.3	15.0	1.7	3.3	8.3	6.7	1.7	1.7	8.3	11.7	69	
	DAY 7	3.3	23.3	23.3	10.0	5.0	10.0	5.0	0.0	3.3	5.0	0.0	11.7	54	

TABLE 12. Duration Vs Mean Ap and Flare Count for All Importance Flares.

MEAN DAILY AP AND MAXIMUM 3-HOUR AP

DURATION	DAYS AFTER	IMP 0 DAY AP	IMP 0 3HR AP	IMP 0 FLARE COUNT	IMP 1 DAY AP	IMP 1 3HR AP	IMP 1 FLARE COUNT	IMP 2 DAY AP	IMP 2 3HR AP	IMP 2 FLARE COUNT	IMP 3 DAY AP	IMP 3 3HR AP	IMP 3 FLARE COUNT	IMP 4 DAY AP	IMP 4 3HR AP	IMP 4 FLARE COUNT	TOTAL DAY AP	TOTAL 3HR AP	TOTAL FLARE COUNT
1-20MIN	DAY 1	17	36	15864	16	34	921	16	32	93	18	46	6	20	49	4	17	36	16898
	DAY 2	18	36		16	32		17	41		30	50		10	17		17	36	
	DAY 3	18	36		18	36		22	44		31	75		17	34		18	36	
	DAY 4	18	36		19	39		20	42		64	111		15	24		18	36	
	DAY 5	17	36		18	38		19	40		35	77		30	77		18	36	
	DAY 6	17	35		18	37		16	32		54	99		59	105		17	35	
	DAY 7	17	34		17	34		18	37		27	77		27	55		17	34	
21-40MIN	DAY 1	18	37	5407	18	37	854	15	31	88	22	43	2	7	15	1	18	37	6352
	DAY 2	18	37		18	36		17	36		35	74		14	48		18	36	
	DAY 3	17	35		18	37		19	40		33	87		69	207		17	36	
	DAY 4	18	37		18	38		20	40		33	56		130	236		18	37	
	DAY 5	18	37		17	36		21	44		27	45		60	132		18	37	
	DAY 6	17	35		17	36		20	38		25	40		126	179		17	35	
	DAY 7	17	35		17	35		19	37		20	38		25	111		17	35	
41-60MIN	DAY 1	18	38	1577	17	37	505	19	39	81	20	42	5	0	0	0	18	37	2168
	DAY 2	19	39		18	38		18	39		13	23		0	0		19	39	
	DAY 3	18	37		18	39		20	39		18	39		0	0		18	39	
	DAY 4	18	37		19	38		21	42		29	51		0	0		18	38	
	DAY 5	18	38		17	35		17	35		14	24		0	0		18	37	
	DAY 6	17	35		17	36		19	39		22	40		0	0		17	36	
	DAY 7	17	35		18	36		16	32		53	101		0	0		17	35	
61-80MIN	DAY 1	17	37	574	18	38	288	19	35	62	28	56	10	9	12	1	18	37	935
	DAY 2	18	37		19	38		21	41		25	57		13	22		18	38	
	DAY 3	17	36		19	40		24	47		29	62		21	39		18	38	
	DAY 4	17	35		19	39		19	38		33	66		34	48		18	37	
	DAY 5	18	37		19	40		20	40		46	86		88	236		19	39	
	DAY 6	17	36		18	38		18	39		27	54		172	300		18	38	
	DAY 7	18	38		19	39		15	33		16	30		62	154		18	38	
81-100MIN	DAY 1	19	38	213	19	38	83	22	46	48	12	23	4	0	0	0	19	39	448
	DAY 2	18	36		17	37		23	53		45	81		0	0		18	39	
	DAY 3	17	37		20	43		28	62		97	177		0	0		21	43	
	DAY 4	20	42		22	49		24	47		47	115		0	0		21	44	
	DAY 5	18	36		19	41		21	41		18	46		0	0		19	39	
	DAY 6	18	38		18	36		18	34		13	25		0	0		18	36	
	DAY 7	18	37		19	38		19	37		20	61		0	0		18	37	
101-120MIN	DAY 1	18	36	117	17	35	86	23	43	22	22	42	7	0	0	0	18	37	232
	DAY 2	19	39		18	40		24	49		21	41		0	0		19	40	
	DAY 3	19	40		17	37		30	55		37	79		0	0		20	41	
	DAY 4	20	40		20	42		25	52		36	71		0	0		21	43	
	DAY 5	17	37		19	39		22	41		53	105		0	0		19	40	
	DAY 6	17	36		19	40		17	35		39	74		0	0		19	38	
	DAY 7	17	35		21	44		20	38		26	50		0	0		19	39	
121-140MIN	DAY 1	18	39	73	17	35	47	16	36	26	16	34	3	0	0	0	17	37	149
	DAY 2	19	42		20	45		19	38		13	23		0	0		20	42	
	DAY 3	19	41		19	42		20	42		22	52		0	0		19	42	
	DAY 4	24	48		21	43		20	40		31	68		0	0		22	45	
	DAY 5	19	41		21	44		16	30		90	167		0	0		21	43	
	DAY 6	18	34		18	34		15	29		50	94		0	0		18	34	
	DAY 7	17	37		21	49		17	36		25	39		0	0		18	40	
>140MIN	DAY 1	22	44	115	20	41	112	22	42	65	25	59	17	0	0	0	21	43	309
	DAY 2	25	52		19	42		27	55		38	82		0	0		24	51	
	DAY 3	29	59		20	42		31	61		48	87		0	0		27	55	
	DAY 4	21	44		21	45		32	63		38	65		0	0		24	50	
	DAY 5	21	42		22	47		31	64		38	76		0	0		24	50	
	DAY 6	18	37		19	38		20	41		27	51		0	0		19	39	
	DAY 7	18	38		20	41		18	41		19	40		0	0		19	40	
TOTAL	DAY 1	18	36	23940	17	36	2996	18	37	485	22	49	54	16	37	6	18	36	27481
	DAY 2	18	36		17	36		20	43		29	61		11	23		18	37	
	DAY 3	18	36		18	38		23	47		40	80		26	64		18	37	
	DAY 4	18	36		19	39		22	45		39	73		37	64		18	37	
	DAY 5	18	36		18	38		21	43		40	79		45	113		18	37	
	DAY 6	17	35		18	37		18	36		31	59		89	150		17	35	
	DAY 7	17	35		18	36		18	36		24	50		33	81		17	35	

TABLE 13. Duration Vs Daily Ap Distribution for 0 Importance Flares.

DURATION	DAYS AFTER	DAILY AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
1-20MIN	DAY 1	43.3	30.5	12.8	6.0	3.2	1.4	0.8	0.6	0.4	0.2	0.7	17	15864
	DAY 2	42.5	30.5	13.1	6.4	3.3	1.7	0.7	0.6	0.3	0.2	0.7	18	
	DAY 3	43.2	30.1	12.3	6.6	3.5	1.7	0.7	0.6	0.2	0.2	0.8	18	
	DAY 4	42.4	30.4	12.9	6.5	3.6	1.7	0.7	0.6	0.3	0.3	0.6	18	
	DAY 5	42.0	30.9	13.0	6.2	3.6	1.7	0.9	0.5	0.3	0.2	0.6	17	
	DAY 6	42.7	30.5	13.3	6.3	3.4	1.6	0.7	0.6	0.2	0.1	0.5	17	
	DAY 7	42.4	32.1	13.7	5.2	3.1	1.4	0.7	0.6	0.2	0.2	0.4	17	
21-40MIN	DAY 1	43.2	29.9	12.4	6.6	3.1	1.9	0.9	0.8	0.2	0.3	0.8	18	5407
	DAY 2	42.6	30.4	12.7	6.8	3.2	1.8	0.6	0.7	0.3	0.2	0.8	18	
	DAY 3	43.4	30.1	12.6	6.8	3.1	1.7	0.9	0.4	0.2	0.2	0.6	17	
	DAY 4	41.9	30.3	13.0	6.6	3.9	1.6	1.0	0.8	0.2	0.2	0.6	18	
	DAY 5	41.1	30.9	12.9	7.2	3.7	1.7	0.9	0.8	0.1	0.3	0.5	18	
	DAY 6	42.4	30.7	14.1	5.7	3.2	1.7	0.9	0.5	0.2	0.2	0.5	17	
	DAY 7	42.1	32.1	13.6	5.4	3.0	1.5	0.8	0.6	0.3	0.1	0.6	17	
41-60MIN	DAY 1	43.8	27.2	12.6	7.5	3.5	2.3	0.7	1.0	0.1	0.3	1.0	18	1577
	DAY 2	39.7	31.1	13.6	7.0	3.0	2.4	0.9	0.9	0.1	0.3	1.0	19	
	DAY 3	40.8	30.6	12.8	7.5	4.1	2.0	0.7	0.3	0.5	0.1	0.6	18	
	DAY 4	40.7	30.6	13.1	6.4	4.6	2.0	1.0	0.7	0.3	0.2	0.5	18	
	DAY 5	40.1	30.7	13.6	7.0	3.7	1.7	1.5	0.8	0.3	0.1	0.5	18	
	DAY 6	42.5	29.6	14.5	6.1	4.1	1.6	0.5	0.4	0.2	0.2	0.3	17	
	DAY 7	44.1	30.2	13.1	4.9	3.6	1.4	0.8	0.8	0.0	0.0	0.7	17	
61-80MIN	DAY 1	42.2	31.5	12.5	5.6	3.5	1.7	1.4	0.7	0.2	0.3	0.3	17	574
	DAY 2	39.9	31.2	14.6	6.4	3.3	2.3	0.2	1.0	0.5	0.0	0.5	18	
	DAY 3	40.8	30.3	13.8	8.0	2.6	2.6	0.7	0.7	0.0	0.5	0.0	17	
	DAY 4	42.3	30.5	12.7	8.2	3.1	1.0	0.3	0.5	0.3	0.3	0.5	17	
	DAY 5	42.9	29.6	12.7	7.0	2.8	2.1	1.2	1.2	0.2	0.2	0.2	18	
	DAY 6	37.6	34.8	13.6	6.3	4.4	1.7	0.9	0.2	0.0	0.3	0.2	17	
	DAY 7	37.6	31.5	15.2	6.6	4.4	2.6	0.7	0.7	0.0	0.3	0.3	18	
81-100MIN	DAY 1	50.2	23.5	9.9	3.8	6.1	2.8	0.5	0.9	0.0	0.5	1.4	19	213
	DAY 2	41.3	30.5	14.1	6.1	4.7	0.9	0.9	0.5	0.0	0.5	0.5	18	
	DAY 3	39.9	33.3	13.1	6.6	2.3	1.9	0.5	0.9	0.5	0.5	0.5	17	
	DAY 4	38.5	30.5	13.1	8.0	2.3	2.8	2.3	0.9	0.0	0.0	1.4	20	
	DAY 5	42.3	29.6	14.1	7.0	2.3	1.4	1.4	0.0	0.0	0.0	1.9	18	
	DAY 6	36.2	33.8	12.2	10.3	4.7	1.4	0.5	0.0	0.0	0.0	0.9	18	
	DAY 7	39.0	33.3	14.1	7.0	2.8	2.3	0.0	0.0	0.0	0.0	1.4	18	
101-120MIN	DAY 1	44.4	30.8	10.3	8.5	3.4	0.0	0.0	0.0	0.0	1.7	0.9	16	117
	DAY 2	42.7	29.1	13.7	6.0	2.6	2.6	0.9	0.9	0.0	0.0	1.7	19	
	DAY 3	43.6	26.5	15.4	2.6	5.1	4.3	0.0	0.9	0.0	0.0	1.7	19	
	DAY 4	37.6	33.3	12.0	9.4	2.6	1.7	0.9	0.9	0.0	0.0	1.7	20	
	DAY 5	45.3	29.1	14.5	5.1	1.7	1.7	0.9	0.9	0.0	0.0	0.9	17	
	DAY 6	39.3	29.9	15.4	10.3	1.7	0.9	0.9	0.9	0.9	0.0	0.0	17	
	DAY 7	41.0	31.6	12.8	6.8	3.4	4.3	0.0	0.0	0.0	0.0	0.0	17	
121-140MIN	DAY 1	43.8	30.1	11.0	8.2	1.4	2.7	0.0	2.7	0.0	0.0	0.0	18	73
	DAY 2	35.6	42.5	5.5	6.8	2.7	2.7	0.0	1.4	0.0	0.0	2.7	19	
	DAY 3	37.0	38.4	13.7	2.7	1.4	2.7	1.4	0.0	0.0	0.0	2.7	19	
	DAY 4	45.2	23.3	11.0	8.2	4.1	1.4	0.0	1.4	0.0	1.4	4.1	24	
	DAY 5	34.2	30.1	16.4	8.2	5.5	5.5	0.0	0.0	0.0	0.0	0.0	19	
	DAY 6	38.4	30.1	11.0	12.3	6.8	0.0	0.0	1.4	0.0	0.0	0.0	18	
	DAY 7	43.8	26.0	13.7	9.6	2.7	4.1	0.0	0.0	0.0	0.0	0.0	17	
>140MIN	DAY 1	38.3	27.8	11.3	10.4	5.2	0.9	1.7	1.7	0.9	0.0	1.7	22	115
	DAY 2	27.0	28.7	12.2	16.5	4.3	5.2	2.6	0.9	0.0	0.9	1.7	25	
	DAY 3	27.8	24.3	18.3	8.7	10.4	2.6	0.9	0.0	0.0	2.6	4.3	29	
	DAY 4	29.6	29.6	21.7	10.4	0.9	4.3	1.7	0.0	0.0	0.9	0.9	21	
	DAY 5	37.4	27.8	14.8	8.7	1.7	4.3	1.7	1.7	0.0	0.0	1.7	21	
	DAY 6	41.7	23.5	20.0	7.8	3.5	1.7	1.7	0.0	0.0	0.0	0.0	18	
	DAY 7	33.9	33.9	16.5	5.2	7.8	1.7	0.0	0.0	0.0	0.0	0.9	18	
TOTAL	DAY 1	43.4	30.1	12.6	6.3	3.3	1.6	0.8	0.7	0.3	0.2	0.8	18	23940
	DAY 2	42.2	30.6	13.0	6.6	3.3	1.8	0.7	0.7	0.3	0.2	0.8	18	
	DAY 3	42.9	30.2	12.5	6.7	3.4	1.8	0.7	0.5	0.2	0.2	0.8	18	
	DAY 4	42.1	30.4	13.0	6.6	3.7	1.7	0.8	0.7	0.3	0.3	0.6	18	
	DAY 5	41.6	30.8	13.1	6.5	3.6	1.7	0.9	0.6	0.3	0.2	0.6	18	
	DAY 6	42.4	30.6	13.6	6.2	3.5	1.6	0.6	0.5	0.2	0.1	0.5	17	
	DAY 7	42.3	32.0	13.7	5.3	3.2	1.5	0.7	0.6	0.2	0.1	0.5	17	

TABLE 14. Duration Vs Maximum 3-Hour ap Distribution for 0 Importance Flares.

DURATION	DAYS AFTER	MAXIMUM 3-HOUR AP — PERCENT FREQUENCY OF OCCURRENCE												MEAN	FLARE COUNT
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150		
1-20MIN	DAY 1	15.1	26.4	18.2	15.8	5.3	4.8	3.7	3.2	2.4	1.3	1.2	2.5	36	15064
	DAY 2	15.3	26.0	17.5	16.1	5.7	4.9	3.9	3.4	2.3	1.2	1.0	2.6	36	
	DAY 3	15.7	25.8	18.3	14.9	5.6	4.9	4.1	3.6	2.1	1.4	1.1	2.6	36	
	DAY 4	15.3	25.5	18.2	15.9	5.8	4.8	3.8	3.5	2.2	1.3	1.2	2.6	36	
	DAY 5	15.0	25.1	19.3	15.9	5.3	4.5	3.9	3.7	2.2	1.2	1.3	2.6	36	
	DAY 6	15.2	25.9	18.5	16.1	5.6	4.6	4.0	3.4	1.9	1.4	1.2	2.2	35	
	DAY 7	15.2	25.7	19.1	16.8	5.9	4.2	3.2	3.3	2.1	1.2	1.0	2.2	34	
21-40MIN	DAY 1	15.6	25.7	17.5	15.3	5.6	4.7	3.8	4.0	2.4	1.4	1.4	2.6	37	5407
	DAY 2	15.3	25.6	17.7	15.5	6.2	5.2	3.8	3.4	2.5	1.2	1.1	2.7	37	
	DAY 3	15.6	26.7	18.0	15.1	5.5	4.7	3.7	4.0	2.3	1.0	1.1	2.3	35	
	DAY 4	14.8	25.4	18.5	16.6	5.0	4.5	3.7	3.7	2.3	1.4	1.4	2.6	37	
	DAY 5	14.7	25.5	17.8	16.1	5.6	5.3	4.0	3.1	2.6	1.2	1.7	2.4	37	
	DAY 6	14.4	26.6	17.9	17.1	5.1	5.2	3.5	3.5	2.2	1.4	1.1	2.2	35	
	DAY 7	14.8	26.1	19.6	16.4	5.3	4.1	3.6	3.3	2.2	1.1	1.1	2.4	35	
41-60MIN	DAY 1	16.2	25.9	17.1	14.6	5.1	5.1	3.7	3.7	2.5	1.2	1.5	3.2	38	1577
	DAY 2	14.3	24.2	17.2	16.9	5.3	5.5	3.7	4.9	2.3	1.2	1.6	3.0	39	
	DAY 3	13.1	24.9	19.4	16.7	5.8	4.9	4.3	4.4	2.1	1.6	1.4	2.5	37	
	DAY 4	13.9	24.7	18.6	15.7	5.7	5.2	5.0	3.4	2.7	1.3	1.4	2.4	37	
	DAY 5	13.8	25.7	16.9	16.9	5.1	4.0	5.1	3.7	2.9	1.3	1.8	2.8	38	
	DAY 6	14.3	26.4	17.2	16.5	6.2	4.4	3.8	3.6	2.4	1.4	1.3	1.8	35	
	DAY 7	14.2	27.8	17.6	18.2	5.0	3.2	3.4	3.3	2.5	1.3	1.3	2.0	35	
61-80MIN	DAY 1	14.1	26.7	17.4	17.4	5.4	4.9	2.8	3.0	2.4	1.6	1.9	2.4	37	574
	DAY 2	16.2	24.7	15.9	16.2	5.9	4.4	5.2	4.2	2.4	1.7	0.3	2.8	37	
	DAY 3	13.8	25.6	18.3	15.5	5.1	6.8	4.0	4.4	2.4	1.0	1.0	2.1	36	
	DAY 4	12.0	28.7	18.3	15.3	5.4	5.4	5.1	2.8	2.4	0.9	0.9	2.3	35	
	DAY 5	12.7	27.5	19.9	13.4	4.4	6.8	3.7	2.8	3.8	0.9	2.1	2.1	37	
	DAY 6	14.1	21.8	19.5	20.0	5.7	3.5	4.2	4.5	2.1	1.0	1.0	2.4	36	
	DAY 7	12.7	23.2	19.0	19.3	6.1	3.1	3.7	5.6	2.8	0.5	1.4	2.6	38	
81-100MIN	DAY 1	15.5	29.6	17.4	13.1	5.6	3.8	2.9	3.3	2.3	0.9	2.8	2.8	38	213
	DAY 2	18.8	22.5	17.8	12.7	7.5	7.0	2.8	3.8	2.8	0.9	0.5	2.8	36	
	DAY 3	14.1	27.2	20.7	13.6	4.2	3.8	3.3	6.1	1.9	0.9	0.9	3.3	37	
	DAY 4	10.8	23.0	21.6	16.0	5.2	6.1	4.2	3.3	1.4	1.4	3.3	3.8	42	
	DAY 5	12.2	27.2	20.2	15.0	6.1	5.2	4.7	2.8	1.4	0.9	0.9	3.3	36	
	DAY 6	14.1	22.1	19.2	14.6	6.6	5.6	4.2	3.8	5.6	2.3	0.5	1.4	38	
	DAY 7	9.4	28.6	19.4	18.8	6.1	4.2	5.2	5.2	2.8	0.5	0.9	1.9	37	
101-120MIN	DAY 1	16.2	25.6	17.9	14.5	3.4	6.5	3.4	3.4	1.7	0.9	1.7	2.6	36	117
	DAY 2	17.1	22.2	19.7	13.7	6.0	6.0	5.1	4.3	0.0	0.9	0.9	4.3	39	
	DAY 3	21.4	24.8	10.3	17.1	6.0	1.7	5.1	5.1	2.6	0.9	0.9	4.3	40	
	DAY 4	14.5	29.1	16.2	12.0	6.8	2.6	6.0	3.4	1.7	1.7	4.3	1.7	40	
	DAY 5	14.5	23.9	25.6	12.0	3.4	1.7	4.3	6.0	2.6	0.9	2.6	2.6	37	
	DAY 6	14.5	23.9	17.9	17.1	6.0	5.1	2.6	6.8	1.7	0.0	2.6	1.7	36	
	DAY 7	13.7	30.8	13.7	16.2	6.8	0.0	5.1	4.3	6.8	0.0	1.7	0.9	35	
121-140MIN	DAY 1	13.7	24.7	24.7	12.3	2.7	6.8	4.1	2.7	1.4	0.0	1.4	5.5	39	73
	DAY 2	12.3	24.7	27.4	13.7	5.5	1.4	1.4	0.0	0.0	5.5	1.4	6.8	42	
	DAY 3	21.9	9.6	27.4	19.2	0.0	6.8	1.4	2.7	1.4	4.1	1.4	4.1	41	
	DAY 4	16.4	26.0	12.3	16.4	1.4	9.5	9.7	1.4	2.7	0.0	2.7	6.8	40	
	DAY 5	9.6	24.7	13.7	20.5	6.8	4.1	1.4	9.6	4.1	1.4	1.4	2.7	41	
	DAY 6	12.3	26.0	16.4	23.3	1.4	5.5	4.1	6.8	0.0	2.7	1.4	0.0	34	
	DAY 7	16.4	24.7	15.1	17.8	8.2	5.5	1.4	0.0	2.7	2.7	2.7	2.7	37	
>140MIN	DAY 1	15.7	22.6	12.2	14.8	7.0	7.0	3.5	5.2	2.6	2.6	2.6	4.3	44	115
	DAY 2	5.2	21.7	14.8	18.3	3.5	3.5	12.2	8.7	0.9	2.6	4.3	4.3	52	
	DAY 3	10.4	18.3	13.0	13.0	8.7	5.2	8.7	7.8	0.9	1.7	2.6	9.6	59	
	DAY 4	9.6	20.9	22.6	10.4	8.7	5.2	7.0	3.5	2.6	3.5	3.5	2.6	44	
	DAY 5	11.3	22.6	18.3	17.4	5.2	2.6	5.2	6.1	4.3	2.6	0.0	4.3	42	
	DAY 6	10.4	28.7	16.5	17.4	6.1	7.0	3.5	3.5	0.0	1.7	2.6	2.6	37	
	DAY 7	8.7	27.0	16.5	19.1	7.0	3.5	6.1	2.6	4.3	3.5	0.0	1.7	38	
TOTAL	DAY 1	15.3	26.2	17.9	15.6	5.4	4.9	3.7	3.4	2.4	1.3	1.3	2.6	36	23940
	DAY 2	15.3	25.7	17.5	16.0	5.8	5.0	3.9	3.5	2.3	1.2	1.1	2.7	36	
	DAY 3	15.5	25.8	18.2	15.1	5.6	4.9	4.0	3.8	2.1	1.4	1.1	2.6	36	
	DAY 4	14.9	25.5	18.6	16.0	5.6	4.8	3.9	3.5	2.3	1.3	1.3	2.6	36	
	DAY 5	14.8	25.3	18.8	15.9	5.3	4.7	4.0	3.6	2.4	1.2	1.4	2.6	36	
	DAY 6	14.9	25.9	18.3	16.4	5.6	4.7	3.9	3.5	2.0	1.4	1.2	2.1	35	
	DAY 7	14.9	25.9	19.0	16.9	5.8	4.1	3.4	3.4	2.2	1.2	1.1	2.2	35	

TABLE 15. Duration Vs Daily Ap Distribution for 1 Importance Flares.

DURATION	DAYS AFTER	DAILY AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
1-20MIN	DAY 1	44.6	31.2	11.9	5.4	3.9	1.1	0.5	0.5	0.4	0.2	0.2	16	921
	DAY 2	46.3	29.5	12.2	6.4	3.0	1.2	0.5	0.3	0.0	0.1	0.4	16	
	DAY 3	40.6	32.1	13.4	6.1	2.9	1.7	0.8	0.8	0.4	0.3	0.9	18	
	DAY 4	39.8	32.8	11.0	6.4	5.6	1.1	0.8	0.5	0.5	0.4	1.0	19	
	DAY 5	36.9	33.6	14.7	6.8	3.9	1.5	0.6	0.2	0.3	0.2	1.1	18	
	DAY 6	41.7	33.6	11.2	4.0	3.5	1.7	1.1	1.7	0.7	0.1	0.8	16	
	DAY 7	42.8	33.9	12.1	4.8	2.9	1.7	0.7	0.2	0.2	0.0	0.8	17	
21-40MIN	DAY 1	41.0	31.6	12.6	7.3	2.3	2.2	1.1	0.5	0.6	0.1	0.7	18	854
	DAY 2	42.0	31.7	10.2	8.0	4.6	1.2	0.6	0.7	0.1	0.2	0.7	18	
	DAY 3	41.9	29.7	13.1	6.0	4.3	2.3	1.1	0.4	0.1	0.2	0.8	18	
	DAY 4	41.8	30.8	11.7	7.5	3.7	1.9	0.9	0.6	0.4	0.1	0.6	18	
	DAY 5	42.5	30.4	12.6	5.5	4.0	2.5	1.2	0.6	0.0	0.1	0.6	17	
	DAY 6	43.7	30.6	12.3	4.8	3.6	1.6	1.6	0.5	0.5	0.0	0.8	17	
	DAY 7	40.6	33.1	12.4	5.3	4.4	1.8	0.7	1.2	0.2	0.1	0.1	17	
41-60MIN	DAY 1	45.1	27.9	14.1	6.3	2.6	1.4	1.0	0.4	0.0	0.2	1.0	17	505
	DAY 2	42.6	20.9	11.9	7.5	5.1	1.2	0.6	0.4	0.4	0.2	1.2	18	
	DAY 3	39.8	30.5	14.3	8.3	3.2	1.0	0.8	1.0	0.2	0.6	0.4	18	
	DAY 4	40.4	31.7	12.9	6.9	3.4	2.4	0.6	0.4	0.4	0.0	1.0	19	
	DAY 5	42.2	28.9	15.8	6.5	3.6	1.0	0.8	0.4	0.0	0.2	0.6	17	
	DAY 6	39.0	34.7	12.1	5.5	4.6	2.0	1.0	0.6	0.0	0.4	0.2	17	
	DAY 7	45.0	28.9	12.1	6.9	2.4	1.4	0.8	1.2	0.4	0.2	0.8	18	
61-90MIN	DAY 1	37.8	33.7	13.2	7.3	4.2	2.1	0.7	0.0	0.0	0.3	0.7	19	288
	DAY 2	40.6	29.9	14.2	5.6	5.2	1.0	0.3	2.1	0.0	0.0	1.0	19	
	DAY 3	43.8	29.2	10.4	6.3	4.5	2.8	0.7	0.7	0.0	0.7	1.0	19	
	DAY 4	42.7	26.4	17.7	4.5	3.5	1.4	1.4	0.7	0.0	0.0	1.7	19	
	DAY 5	35.8	34.0	11.8	6.6	5.9	3.1	1.0	0.7	0.7	0.3	0.0	19	
	DAY 6	40.3	30.9	13.5	6.3	2.1	3.5	1.7	0.7	0.7	0.0	0.3	18	
	DAY 7	38.5	30.6	15.3	6.9	4.9	1.7	0.3	0.7	0.0	0.0	1.0	19	
81-100MIN	DAY 1	39.9	35.5	10.9	4.4	4.4	0.5	1.1	0.5	1.1	0.5	1.1	19	183
	DAY 2	47.5	26.2	8.7	8.7	5.5	1.1	1.6	0.5	0.0	0.0	0.0	17	
	DAY 3	38.8	29.0	15.8	5.5	4.9	3.3	0.0	0.0	0.0	0.5	2.2	20	
	DAY 4	36.6	31.7	13.7	7.7	2.2	1.6	2.7	0.5	0.5	0.5	2.2	22	
	DAY 5	41.0	27.9	13.7	8.7	3.3	2.2	1.6	0.5	0.0	0.5	0.5	19	
	DAY 6	35.0	34.4	15.8	7.1	4.4	2.7	0.5	0.0	0.0	0.0	0.0	18	
	DAY 7	42.6	29.5	9.3	7.7	5.5	1.6	1.6	0.5	0.0	1.1	0.5	19	
101-120MIN	DAY 1	38.4	39.5	9.3	4.7	5.9	1.2	0.0	0.0	0.0	0.0	1.2	17	86
	DAY 2	27.9	44.2	14.0	7.0	3.5	1.2	1.2	0.0	0.0	1.2	0.0	18	
	DAY 3	37.2	30.2	19.8	5.8	1.2	4.7	1.2	0.0	0.0	0.0	0.0	17	
	DAY 4	39.5	27.9	14.0	3.5	9.3	3.5	1.2	0.0	0.0	0.0	1.2	20	
	DAY 5	36.0	31.4	12.8	9.3	5.8	2.3	1.2	1.2	0.0	0.0	0.0	19	
	DAY 6	39.5	23.3	20.9	5.8	3.5	4.7	1.2	1.2	0.0	0.0	0.0	19	
	DAY 7	38.4	29.4	15.1	7.0	5.8	4.7	2.3	1.2	1.2	0.0	0.0	21	
121-140MIN	DAY 1	46.8	31.9	10.6	4.3	2.1	2.1	0.0	0.0	0.0	0.0	2.1	17	47
	DAY 2	42.6	34.0	6.4	8.5	4.3	0.0	0.0	2.1	0.0	0.0	2.1	20	
	DAY 3	40.4	23.4	14.9	10.6	6.4	4.3	0.0	0.0	0.0	0.0	0.0	19	
	DAY 4	42.6	25.5	19.1	4.3	2.1	4.3	0.0	0.0	0.0	0.0	2.1	21	
	DAY 5	36.2	25.5	6.4	14.9	10.6	2.1	2.1	2.1	0.0	0.0	0.0	21	
	DAY 6	34.0	38.3	10.6	8.5	8.5	0.0	0.0	0.0	0.0	0.0	0.0	18	
	DAY 7	34.0	29.8	14.9	6.4	6.4	4.3	2.1	2.1	0.0	0.0	0.0	21	
>140MIN	DAY 1	40.2	25.5	11.6	12.5	5.4	0.0	1.8	0.9	0.0	0.9	0.9	20	112
	DAY 2	30.4	36.6	17.0	8.0	2.7	3.6	1.8	0.0	0.0	0.0	0.0	19	
	DAY 3	33.9	28.4	17.0	8.9	4.5	2.7	3.6	0.0	0.9	0.0	0.0	20	
	DAY 4	33.9	29.5	12.5	10.7	7.1	2.7	1.8	0.0	0.0	1.8	0.0	21	
	DAY 5	26.8	39.3	18.8	6.3	1.8	2.7	0.9	0.0	0.9	0.9	1.8	22	
	DAY 6	35.7	33.0	18.8	5.4	2.7	1.8	0.0	0.0	0.9	0.0	1.8	19	
	DAY 7	34.8	39.3	11.6	6.3	2.7	1.8	1.8	0.0	0.0	0.0	1.8	20	
TOTAL	DAY 1	42.4	31.3	12.4	6.4	3.3	1.5	0.8	0.4	0.4	0.2	0.7	17	2996
	DAY 2	42.8	30.6	11.7	7.2	4.2	1.2	0.7	0.6	0.1	0.2	0.7	17	
	DAY 3	40.7	30.4	13.7	6.6	3.7	2.1	0.9	0.6	0.2	0.4	0.8	18	
	DAY 4	40.4	31.0	12.6	6.7	4.4	1.8	1.0	0.5	0.4	0.3	1.0	19	
	DAY 5	39.1	31.6	13.9	6.7	4.1	2.0	1.0	0.5	0.2	0.2	0.7	18	
	DAY 6	40.9	32.4	12.7	5.1	3.7	2.0	1.2	0.9	0.4	0.1	0.6	18	
	DAY 7	41.6	32.1	12.4	5.8	3.7	1.8	0.8	0.8	0.2	0.1	0.6	18	

TABLE 16. Duration Vs Maximum 3-Hour ap Distribution for 1 Importance Flares.

DURATION	DAYS AFTER	MAXIMUM 3-HOUR AP — PERCENT FREQUENCY OF OCCURRENCE												MEAN	FLARE COUNT
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150		
1-20MIN	DAY 1	16.0	26.3	16.7	17.5	5.4	6.0	3.1	2.8	1.5	1.4	1.3	2.0	34	921
	DAY 2	16.6	27.1	20.1	14.8	4.8	4.8	3.4	2.7	2.3	1.0	0.9	1.6	32	
	DAY 3	16.3	24.1	13.9	15.3	6.0	4.5	4.3	3.1	1.8	2.0	1.2	2.5	36	
	DAY 4	12.2	25.3	19.1	16.8	5.2	4.3	4.1	4.6	2.7	1.8	0.9	2.9	39	
	DAY 5	13.0	23.2	21.5	13.7	6.7	5.8	3.5	4.3	1.7	2.1	2.0	2.6	38	
	DAY 6	13.4	27.7	18.7	16.8	6.4	2.4	2.7	2.6	2.4	1.8	1.4	3.7	37	
	DAY 7	14.0	25.7	22.7	14.8	6.6	4.3	2.4	2.9	2.1	1.2	1.2	2.1	34	
21-40MIN	DAY 1	15.3	25.8	16.7	14.9	5.9	4.6	5.0	3.5	3.0	1.5	1.1	2.7	37	854
	DAY 2	15.0	26.8	17.1	14.3	5.0	6.6	4.7	3.6	2.2	1.8	0.7	2.2	36	
	DAY 3	16.0	24.1	17.8	14.2	6.1	5.4	4.8	4.3	2.3	1.5	1.1	2.3	37	
	DAY 4	14.2	26.7	15.8	18.4	5.0	4.7	3.6	3.2	2.7	1.8	0.8	3.2	38	
	DAY 5	15.6	26.0	19.0	13.6	6.4	4.3	3.7	3.6	2.1	2.2	1.4	2.0	36	
	DAY 6	14.9	26.3	17.6	16.2	6.0	5.3	3.7	2.7	1.4	1.5	1.6	2.8	36	
	DAY 7	14.2	26.7	18.2	16.2	5.5	4.7	3.0	3.4	2.3	1.5	1.8	1.9	35	
41-60MIN	DAY 1	17.4	25.3	17.4	16.0	4.2	5.0	3.2	3.2	2.0	1.4	2.0	3.0	37	505
	DAY 2	14.9	26.7	18.6	11.5	5.1	4.8	4.0	5.9	3.0	2.0	1.0	2.6	38	
	DAY 3	12.5	26.7	15.0	17.2	6.3	5.1	4.4	5.0	2.8	1.6	0.8	2.6	39	
	DAY 4	11.3	26.5	18.8	18.2	6.5	3.8	3.6	4.0	2.2	1.4	0.8	3.0	38	
	DAY 5	12.9	26.7	18.6	16.4	7.7	4.8	3.2	3.4	1.8	1.0	2.0	1.6	35	
	DAY 6	13.9	25.1	19.0	17.6	4.6	3.8	4.0	4.8	2.0	2.0	1.0	2.4	36	
	DAY 7	13.9	29.5	17.4	15.4	4.6	3.8	4.4	2.6	2.0	1.2	1.6	3.4	36	
61-80MIN	DAY 1	15.3	23.6	17.4	14.6	5.9	6.9	2.8	5.9	2.1	1.4	2.1	2.1	38	288
	DAY 2	14.2	24.3	16.0	17.0	8.7	6.3	3.5	2.8	1.4	2.1	1.0	2.8	38	
	DAY 3	13.2	27.1	19.1	11.5	4.5	6.3	4.5	3.8	3.8	2.8	0.0	3.5	40	
	DAY 4	11.8	27.4	20.1	13.9	7.3	4.5	3.1	4.2	1.7	0.7	0.3	4.9	39	
	DAY 5	11.8	22.2	20.1	17.4	4.5	4.9	5.9	2.8	2.4	2.4	2.8	2.8	40	
	DAY 6	12.5	25.0	14.9	19.1	8.0	4.9	2.8	3.1	2.8	1.4	3.5	2.1	38	
	DAY 7	13.5	23.3	20.1	14.2	5.9	5.2	4.5	4.5	3.5	1.7	1.0	2.4	39	
81-100MIN	DAY 1	10.9	29.5	14.8	19.1	3.3	8.2	2.2	3.8	2.2	0.5	2.2	3.3	38	183
	DAY 2	14.2	27.9	18.6	12.6	2.2	6.0	3.8	4.4	4.9	2.7	2.2	0.5	37	
	DAY 3	12.6	25.1	18.6	13.7	4.9	3.8	2.2	7.1	6.0	2.2	0.0	3.8	43	
	DAY 4	8.7	24.0	18.0	19.7	5.5	4.9	3.8	2.2	3.8	1.1	2.2	6.0	49	
	DAY 5	8.7	26.2	19.7	12.6	7.7	7.7	3.3	6.0	1.1	2.2	3.3	1.6	41	
	DAY 6	9.3	23.0	23.5	17.5	8.2	3.3	3.8	3.8	3.3	1.6	2.2	0.5	36	
	DAY 7	13.1	29.0	17.5	16.4	3.8	2.7	2.2	4.4	2.7	2.2	2.7	3.3	38	
101-120MIN	DAY 1	14.0	23.3	19.8	24.4	4.7	1.2	4.7	1.2	1.2	2.3	1.2	2.3	35	86
	DAY 2	8.1	18.6	27.9	16.3	10.5	5.8	0.0	5.8	2.3	0.0	1.2	3.5	40	
	DAY 3	12.8	24.4	18.6	12.8	4.7	9.3	5.8	5.8	1.2	1.2	2.3	1.2	37	
	DAY 4	11.6	25.6	18.6	15.1	3.5	7.0	1.2	4.7	2.3	3.5	3.5	3.5	42	
	DAY 5	14.0	23.3	16.3	15.1	3.5	9.3	2.3	2.3	8.1	2.3	2.3	1.2	39	
	DAY 6	12.8	25.6	16.3	15.1	5.8	5.8	2.3	7.0	2.3	2.3	2.3	2.3	40	
	DAY 7	9.3	25.6	19.8	12.8	5.8	4.7	5.8	1.2	5.8	2.3	7.0	1.2	44	
121-140MIN	DAY 1	19.1	19.1	17.0	25.5	4.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	35	47
	DAY 2	6.4	29.8	21.3	21.3	2.1	0.0	4.3	4.3	2.1	2.1	2.1	4.3	45	
	DAY 3	12.8	27.7	12.8	12.8	8.5	0.0	8.5	4.3	6.4	2.1	0.0	4.3	42	
	DAY 4	17.0	25.5	8.5	21.3	8.5	6.4	2.1	4.3	0.0	0.0	2.1	4.3	43	
	DAY 5	12.8	23.4	8.5	21.3	4.3	6.4	2.1	4.3	6.4	6.4	2.1	2.1	44	
	DAY 6	4.3	31.9	21.3	21.3	0.0	6.4	4.3	6.4	4.3	0.0	0.0	0.0	34	
	DAY 7	10.6	25.5	10.6	19.1	2.1	6.4	6.4	4.3	0.0	4.3	2.1	8.5	49	
>140MIN	DAY 1	17.9	19.6	15.2	14.3	5.4	7.1	4.5	6.3	4.5	1.8	0.9	2.7	41	112
	DAY 2	11.6	18.8	16.1	23.2	3.6	3.6	7.1	4.5	5.4	1.8	2.7	1.8	42	
	DAY 3	16.1	20.5	17.9	11.6	3.6	6.0	6.3	3.6	3.6	4.5	1.8	2.7	42	
	DAY 4	7.1	25.9	11.6	20.5	2.7	7.1	8.0	4.5	5.4	2.7	1.8	2.7	45	
	DAY 5	6.3	23.2	18.8	21.4	8.9	1.8	7.1	1.8	2.7	1.8	0.9	5.4	47	
	DAY 6	5.4	27.7	23.2	17.0	8.0	6.3	4.5	2.7	1.8	0.9	0.0	2.7	38	
	DAY 7	8.0	19.6	21.2	26.8	5.4	3.6	3.6	1.8	1.8	0.0	0.9	5.4	41	
TOTAL	DAY 1	15.7	25.5	16.8	16.5	5.2	5.5	3.7	3.5	2.2	1.4	1.5	2.5	36	2996
	DAY 2	14.9	26.2	18.0	14.6	5.2	5.4	3.9	3.8	2.6	1.6	1.0	2.1	36	
	DAY 3	14.9	24.8	17.8	14.6	5.8	5.2	4.5	4.2	2.7	1.9	0.9	2.6	38	
	DAY 4	12.2	26.1	17.7	17.6	5.5	4.6	3.8	3.9	2.6	1.6	1.0	3.4	39	
	DAY 5	13.1	24.7	19.6	14.9	6.6	5.2	3.8	3.8	2.2	2.0	1.9	2.3	38	
	DAY 6	13.1	26.3	18.5	17.1	6.2	4.0	3.4	3.3	2.1	1.7	1.6	2.7	37	
	DAY 7	13.5	26.4	19.9	15.8	5.6	4.3	3.3	3.2	2.4	1.4	1.7	2.5	36	

TABLE 17. Duration Vs Daily Ap Distribution for 2 Importance Flares.

DURATION	DAYS AFTER	DAILY AP — PERCENT FREQUENCY OF OCCURRENCE											MEAN	FLARE COUNT
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
1-20MIN	DAY 1	50.5	28.0	10.8	2.2	6.5	1.1	0.0	1.1	0.0	0.0	0.0	16	93
	DAY 2	35.5	38.7	14.0	6.5	1.1	1.1	2.2	1.1	0.0	0.0	0.0	17	
	DAY 3	25.8	38.7	15.1	7.5	5.4	3.2	1.1	1.1	0.0	1.1	1.1	22	
	DAY 4	35.5	32.3	12.9	5.4	5.4	4.3	2.2	1.1	0.0	0.0	1.1	20	
	DAY 5	37.6	34.4	15.1	5.4	3.2	1.1	0.0	1.1	0.0	1.1	1.1	19	
	DAY 6	39.8	34.4	16.1	3.2	2.2	1.1	2.2	1.1	0.0	0.0	0.0	16	
	DAY 7	44.1	30.1	10.8	5.4	4.3	0.0	3.2	2.2	0.0	0.0	0.0	18	
21-40MIN	DAY 1	48.9	30.7	6.8	8.0	4.5	0.0	1.1	0.0	0.0	0.0	0.0	15	88
	DAY 2	42.0	29.5	18.2	4.5	2.3	0.0	1.1	0.0	0.0	1.1	1.1	17	
	DAY 3	36.4	31.8	12.5	12.5	3.4	1.1	0.0	0.0	1.1	1.1	0.0	19	
	DAY 4	46.6	19.3	11.4	9.0	11.4	0.0	0.0	1.1	0.0	0.0	2.3	20	
	DAY 5	37.5	20.4	13.6	11.4	3.4	2.3	0.0	1.1	0.0	1.1	1.1	21	
	DAY 6	37.5	27.3	14.8	9.1	8.0	1.1	1.1	0.0	0.0	0.0	1.1	20	
	DAY 7	36.4	34.1	13.6	8.0	3.4	0.0	2.3	1.1	0.0	0.0	1.1	19	
41-60MIN	DAY 1	44.4	23.5	16.0	4.9	6.2	2.5	0.0	0.0	1.2	0.0	1.2	19	81
	DAY 2	42.0	27.2	9.9	12.3	6.2	1.2	1.2	0.0	0.0	0.0	0.0	18	
	DAY 3	43.2	23.5	16.0	9.9	2.5	1.2	1.2	1.2	0.0	0.0	1.2	20	
	DAY 4	35.8	37.0	6.2	3.7	3.7	7.4	1.2	2.5	1.2	1.2	0.0	21	
	DAY 5	32.1	43.2	14.8	2.5	2.5	2.5	2.5	0.0	0.0	0.0	0.0	17	
	DAY 6	42.0	33.3	8.6	3.7	6.6	1.2	1.2	0.0	0.0	0.0	1.2	19	
	DAY 7	50.6	25.9	8.6	7.4	2.5	2.5	1.2	1.2	0.0	0.0	0.0	16	
61-80MIN	DAY 1	40.3	40.3	8.1	6.5	1.6	0.0	0.0	0.0	0.0	0.0	3.2	19	62
	DAY 2	37.1	35.5	9.7	11.3	1.6	0.0	1.6	0.0	1.6	0.0	1.6	21	
	DAY 3	32.3	24.2	14.5	9.7	6.5	6.5	1.6	1.6	0.0	1.6	1.6	24	
	DAY 4	37.1	27.4	16.1	9.7	6.5	1.6	0.0	1.6	0.0	0.0	0.0	19	
	DAY 5	37.1	30.6	16.1	3.2	4.8	3.2	0.0	3.2	0.0	1.6	0.0	20	
	DAY 6	48.4	30.6	6.5	3.2	1.6	4.8	1.6	3.2	0.0	0.0	0.0	18	
	DAY 7	53.2	24.2	9.7	4.8	4.8	1.6	1.6	0.0	0.0	0.0	0.0	15	
81-100MIN	DAY 1	29.2	29.2	14.6	12.5	4.2	6.3	4.2	0.0	0.0	0.0	0.0	22	48
	DAY 2	31.3	22.9	22.9	12.5	2.1	4.2	0.0	0.0	2.1	0.0	2.1	23	
	DAY 3	25.0	25.0	22.9	2.1	10.4	6.3	4.2	0.0	0.0	0.0	4.2	28	
	DAY 4	25.0	31.3	25.0	12.5	0.0	2.1	2.1	0.0	0.0	0.0	2.1	24	
	DAY 5	33.3	31.3	14.6	10.4	4.3	0.0	0.0	0.0	0.0	0.0	2.1	21	
	DAY 6	37.5	29.2	10.4	14.6	8.3	0.0	0.0	0.0	0.0	0.0	0.0	18	
	DAY 7	39.6	27.1	10.4	12.5	2.1	8.3	0.0	0.0	0.0	0.0	0.0	19	
101-120MIN	DAY 1	45.5	22.7	4.5	22.7	0.0	0.0	0.0	0.0	0.0	0.0	4.5	23	22
	DAY 2	40.9	22.7	9.1	9.1	4.5	4.5	4.5	0.0	0.0	0.0	4.5	24	
	DAY 3	40.9	27.3	13.6	9.1	0.0	0.0	0.0	0.0	0.0	0.0	9.1	30	
	DAY 4	18.2	31.8	31.8	4.5	4.5	0.0	4.5	0.0	0.0	0.0	4.5	25	
	DAY 5	9.1	45.5	22.7	18.2	4.5	0.0	0.0	0.0	0.0	0.0	0.0	22	
	DAY 6	27.3	54.5	9.1	0.0	4.5	0.0	4.5	0.0	0.0	0.0	0.0	17	
	DAY 7	18.2	50.0	9.1	13.6	4.5	4.5	0.0	0.0	0.0	0.0	0.0	20	
121-140MIN	DAY 1	42.3	30.8	15.4	3.8	3.8	3.8	0.0	0.0	0.0	0.0	0.0	16	26
	DAY 2	38.5	26.9	15.4	7.7	7.7	3.8	0.0	0.0	0.0	0.0	0.0	19	
	DAY 3	30.8	34.6	11.5	11.5	7.7	0.0	3.8	0.0	0.0	0.0	0.0	20	
	DAY 4	23.1	42.3	11.5	19.2	0.0	0.0	0.0	3.8	0.0	0.0	0.0	20	
	DAY 5	30.8	34.6	19.2	15.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	
	DAY 6	42.3	42.3	3.8	3.8	3.8	3.8	0.0	0.0	0.0	0.0	0.0	15	
	DAY 7	30.8	38.5	15.4	11.5	3.8	0.0	0.0	0.0	0.0	0.0	0.0	17	
>140MIN	DAY 1	44.6	20.0	15.4	4.6	6.2	0.0	4.6	1.5	1.5	0.0	1.5	22	65
	DAY 2	33.8	26.2	7.7	15.4	7.7	3.1	3.1	0.0	0.0	0.0	3.1	27	
	DAY 3	30.8	13.8	12.3	16.9	13.8	1.5	1.5	3.1	1.5	1.5	3.1	31	
	DAY 4	21.5	26.2	21.5	6.2	6.2	10.8	0.0	1.5	0.0	1.5	4.6	32	
	DAY 5	30.8	23.1	18.5	1.5	12.3	3.1	3.1	1.5	1.5	0.0	4.6	31	
	DAY 6	32.3	33.8	13.8	6.2	6.2	4.6	1.5	1.5	0.0	0.0	0.0	20	
	DAY 7	36.9	35.4	9.2	10.8	4.6	1.5	1.5	0.0	0.0	0.0	0.0	18	
TOTAL	DAY 1	44.3	28.2	11.5	6.6	4.7	1.4	1.2	0.4	0.4	0.0	1.0	18	485
	DAY 2	37.7	30.1	13.4	9.7	3.7	1.6	1.6	0.2	0.4	0.2	1.2	20	
	DAY 3	33.0	27.6	14.8	10.1	6.2	2.7	1.4	1.0	0.4	0.8	1.9	23	
	DAY 4	33.4	29.7	15.1	7.6	5.6	3.9	1.0	1.4	0.2	0.4	1.6	22	
	DAY 5	33.6	33.0	15.9	6.8	4.9	1.9	0.8	1.0	0.2	0.6	1.2	21	
	DAY 6	39.2	33.2	11.5	5.8	5.6	2.1	1.4	0.8	0.0	0.0	0.4	18	
	DAY 7	41.6	31.1	10.7	8.2	3.7	1.9	1.6	0.4	0.0	0.0	0.2	18	

TABLE 18. Duration Vs Maximum 3-Hour ap Distribution for 2 Importance Flares.

DURATION	DAYS AFTER	MAXIMUM 3-HOUR AP — PERCENT FREQUENCY OF OCCURRENCE											MEAN	FLARE COUNT
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150	
1-20MIN	DAY 1	15.1	30.1	19.4	16.1	5.4	0.0	3.2	3.2	5.4	1.1	0.0	1.1	32	93
	DAY 2	9.7	21.5	19.4	22.6	6.5	5.4	2.2	5.4	1.1	0.0	2.2	4.3	41	
	DAY 3	10.8	19.3	22.6	11.8	7.5	4.3	9.7	4.3	2.2	4.3	0.0	4.3	44	
	DAY 4	15.1	17.2	20.4	20.4	4.3	2.2	4.3	4.3	2.2	3.2	2.2	4.3	42	
	DAY 5	12.9	19.4	24.7	16.1	6.5	5.4	1.1	5.4	3.2	1.1	1.1	3.2	40	
	DAY 6	11.8	28.0	20.4	18.3	9.7	2.2	3.2	0.0	1.1	3.2	1.1	1.1	32	
	DAY 7	14.0	30.1	15.0	19.4	4.3	4.3	4.3	1.1	3.2	0.0	1.1	4.3	37	
21-40MIN	DAY 1	21.6	25.0	12.5	20.5	4.5	2.3	5.7	5.7	0.0	0.0	1.1	1.1	31	88
	DAY 2	14.8	25.0	17.0	14.2	5.7	6.8	3.4	2.3	2.3	0.0	2.3	2.3	36	
	DAY 3	15.9	14.8	20.5	17.0	8.0	8.0	4.5	1.1	4.5	1.1	1.1	3.4	40	
	DAY 4	19.3	23.9	15.8	11.4	5.7	9.1	2.3	1.1	5.7	1.1	1.1	4.5	40	
	DAY 5	6.8	25.0	12.5	19.3	11.4	5.7	5.7	4.5	1.1	3.4	1.1	3.4	44	
	DAY 6	13.6	21.6	23.9	11.4	8.0	3.4	5.7	3.4	4.5	1.1	1.1	2.3	38	
	DAY 7	20.5	15.9	19.3	17.0	6.8	4.5	4.5	1.1	4.5	3.4	1.1	1.1	37	
41-60MIN	DAY 1	16.0	29.6	9.9	12.3	7.4	7.4	2.5	4.9	2.5	3.7	1.2	2.5	39	81
	DAY 2	11.1	24.7	22.2	11.1	3.7	3.7	8.6	3.7	6.2	2.5	1.2	1.2	39	
	DAY 3	12.3	33.3	12.3	11.1	9.9	7.4	4.9	1.2	0.0	2.5	1.2	3.7	39	
	DAY 4	13.6	25.9	17.3	17.3	3.7	1.2	4.9	2.5	2.5	3.7	1.2	6.2	42	
	DAY 5	8.6	24.7	22.2	12.3	7.4	6.2	4.9	2.5	1.2	1.2	1.2	2.5	35	
	DAY 6	11.1	23.5	22.2	12.3	6.2	3.7	1.2	4.9	1.2	3.7	1.2	3.7	39	
	DAY 7	12.3	39.5	14.8	8.6	6.2	3.7	3.7	6.2	1.2	2.5	0.0	1.2	32	
61-80MIN	DAY 1	9.7	32.3	19.4	17.7	6.5	3.2	4.8	1.6	1.6	0.0	0.0	3.2	35	67
	DAY 2	17.7	19.4	24.2	9.7	6.5	6.5	1.6	8.1	0.0	0.0	3.2	3.2	41	
	DAY 3	12.9	17.7	14.5	25.8	0.0	1.6	4.8	6.5	6.5	1.6	3.2	4.8	47	
	DAY 4	12.9	19.4	16.1	21.0	11.3	0.0	1.6	8.1	4.8	3.2	1.6	0.0	38	
	DAY 5	4.8	24.2	21.0	24.2	4.8	4.8	4.8	1.6	3.2	1.6	0.0	4.8	40	
	DAY 6	12.9	30.6	21.0	11.3	6.5	0.0	1.6	4.8	0.0	3.2	4.8	3.2	39	
	DAY 7	11.3	38.7	16.1	11.3	4.9	4.8	3.2	3.2	1.6	0.0	0.0	4.8	33	
81-100MIN	DAY 1	10.4	18.8	16.7	18.8	6.3	6.3	4.2	4.2	6.3	0.0	6.3	2.1	46	48
	DAY 2	4.2	27.1	14.6	8.3	2.1	12.5	10.4	8.3	0.0	2.1	2.1	8.3	53	
	DAY 3	8.3	16.7	14.6	10.4	4.2	10.4	0.0	8.3	4.2	8.3	6.3	8.3	62	
	DAY 4	4.2	22.9	18.8	12.5	12.5	10.4	6.3	4.2	4.2	2.1	0.0	2.1	47	
	DAY 5	4.2	31.3	20.8	12.5	4.2	4.2	8.3	4.2	4.2	4.2	0.0	2.1	41	
	DAY 6	10.4	31.3	12.5	16.7	4.2	8.3	8.3	0.3	2.1	0.0	0.0	0.0	34	
	DAY 7	10.4	22.9	20.8	16.7	2.1	8.3	8.3	2.1	4.2	2.1	2.1	0.0	37	
101-120MIN	DAY 1	18.2	22.7	13.6	18.2	4.5	4.5	0.0	4.5	4.5	4.5	0.0	4.5	43	22
	DAY 2	18.2	13.6	22.7	9.1	4.5	4.5	9.1	0.0	0.0	4.5	9.1	4.5	49	
	DAY 3	13.6	27.3	9.1	22.7	0.0	4.5	4.5	4.5	0.0	4.5	0.0	9.1	55	
	DAY 4	13.6	0.0	9.1	30.4	13.6	4.5	0.0	4.5	9.1	0.0	4.5	4.5	52	
	DAY 5	0.0	13.6	22.7	22.7	9.1	13.6	9.1	9.1	0.0	0.0	0.0	0.0	41	
	DAY 6	9.1	22.7	36.4	13.6	0.0	9.1	0.0	0.0	0.0	0.0	9.1	0.0	35	
	DAY 7	4.5	22.7	31.8	9.1	4.5	9.1	9.1	0.0	4.5	0.0	4.5	0.0	38	
121-140MIN	DAY 1	15.4	19.2	19.2	23.1	3.8	7.7	0.0	3.8	3.8	0.0	0.0	3.8	36	26
	DAY 2	3.8	23.1	23.1	15.4	3.8	11.5	3.8	15.4	0.0	0.0	0.0	0.0	34	
	DAY 3	7.7	23.1	19.2	23.1	0.0	3.8	3.8	11.5	0.0	0.0	3.8	3.8	42	
	DAY 4	11.5	15.4	19.2	23.1	3.8	11.5	0.0	11.5	0.0	0.0	3.8	0.0	40	
	DAY 5	11.5	26.9	19.2	11.5	11.5	11.5	7.7	0.0	0.0	0.0	0.0	0.0	30	
	DAY 6	7.7	34.6	30.8	15.4	0.0	3.8	0.0	0.0	3.8	3.8	0.0	0.0	29	
	DAY 7	23.1	11.5	15.4	23.1	11.5	3.8	0.0	7.7	0.0	0.0	0.0	3.8	36	
>140MIN	DAY 1	9.2	33.8	15.4	12.3	4.6	3.1	1.5	4.6	3.1	6.2	4.6	1.5	42	65
	DAY 2	10.8	24.6	15.4	12.3	1.5	3.1	3.1	9.2	9.2	4.6	1.5	4.6	55	
	DAY 3	7.7	20.0	6.2	13.8	3.1	7.7	7.7	9.2	4.6	7.7	7.7	4.6	61	
	DAY 4	6.2	13.8	12.3	10.9	13.8	3.1	4.6	7.7	6.2	3.1	0.0	12.3	63	
	DAY 5	6.2	21.5	16.9	7.7	7.7	7.7	10.8	1.5	3.1	3.1	4.6	9.2	64	
	DAY 6	12.3	16.9	15.4	20.2	4.6	6.2	6.2	3.1	3.1	0.0	1.5	4.6	41	
	DAY 7	10.8	18.5	23.1	18.5	6.2	3.1	4.6	4.6	0.0	6.2	1.5	3.1	41	
TOTAL	DAY 1	14.6	27.8	15.5	16.7	5.6	3.7	3.3	4.1	3.1	1.9	1.6	2.1	37	485
	DAY 2	11.5	23.1	19.4	14.4	4.5	6.2	4.7	6.0	2.9	1.4	2.3	3.5	43	
	DAY 3	11.5	20.8	15.7	15.7	5.4	6.2	5.6	4.9	3.1	3.7	2.7	4.7	47	
	DAY 4	12.8	19.4	16.5	17.9	7.8	4.5	3.5	4.7	4.1	2.5	1.4	4.7	45	
	DAY 5	7.6	23.5	20.6	15.7	7.6	6.4	5.8	3.5	2.3	2.1	1.2	3.7	43	
	DAY 6	11.8	25.4	22.1	15.7	6.2	3.9	3.7	3.1	2.1	2.1	1.9	2.3	36	
	DAY 7	13.8	26.6	18.1	15.5	5.6	4.7	4.5	3.1	2.5	2.1	1.0	2.5	36	

TABLE 19. Duration Vs Daily Ap Distribution for 3 or 4 Importance Flares.

DURATION	DAYS AFTER	DAILY AP — PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
1-20MIN	DAY 1	70.0	0.0	10.0	0.0	10.0	0.0	10.0	0.0	0.0	0.0	0.0	19	10
	DAY 2	50.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	22	
	DAY 3	50.0	0.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	26	
	DAY 4	30.0	10.0	0.0	30.0	10.0	0.0	0.0	0.0	0.0	0.0	20.0	44	
	DAY 5	10.0	50.0	10.0	0.0	10.0	20.0	0.0	0.0	10.0	0.0	0.0	33	
	DAY 6	30.0	10.0	0.0	10.0	10.0	0.0	0.0	20.0	0.0	0.0	20.0	56	
	DAY 7	10.0	50.0	20.0	0.0	0.0	0.0	10.0	10.0	0.0	0.0	0.0	27	
21-40MIN	DAY 1	66.7	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	3
	DAY 2	0.0	33.3	33.3	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	28	
	DAY 3	0.0	0.0	33.3	33.3	0.0	0.0	33.3	0.0	0.0	0.0	0.0	45	
	DAY 4	0.0	33.3	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	33.3	65	
	DAY 5	0.0	33.3	0.0	0.0	33.3	33.3	0.0	0.0	0.0	0.0	0.0	38	
	DAY 6	0.0	33.3	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	33.3	59	
	DAY 7	33.3	0.0	33.3	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	
41-60MIN	DAY 1	20.0	60.0	20.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	20	5
	DAY 2	20.0	60.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	
	DAY 3	0.0	60.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	
	DAY 4	0.0	20.0	60.0	20.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	29	
	DAY 5	20.0	60.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	
	DAY 6	20.0	60.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	22	
	DAY 7	20.0	20.0	20.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	20.0	53	
61-80MIN	DAY 1	36.4	18.2	0.0	18.2	9.1	18.2	0.0	0.0	0.0	0.0	0.0	26	11
	DAY 2	27.3	18.2	9.1	27.3	18.2	0.0	0.0	0.0	0.0	0.0	0.0	24	
	DAY 3	27.3	18.2	18.2	9.1	9.1	0.0	18.2	0.0	0.0	0.0	0.0	29	
	DAY 4	27.3	9.1	9.1	36.4	0.0	9.1	0.0	0.0	0.0	0.0	9.1	33	
	DAY 5	18.2	18.2	9.1	18.2	18.2	0.0	0.0	0.0	9.1	0.0	9.1	50	
	DAY 6	18.2	27.3	9.1	9.1	18.2	0.0	9.1	0.0	0.0	0.0	9.1	40	
	DAY 7	45.5	27.3	0.0	18.2	0.0	0.0	9.1	0.0	0.0	0.0	0.0	20	
81-100MIN	DAY 1	25.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	4
	DAY 2	0.0	25.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	45	
	DAY 3	0.0	0.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	97	
	DAY 4	0.0	0.0	25.0	0.0	25.0	50.0	0.0	0.0	0.0	0.0	0.0	47	
	DAY 5	50.0	25.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	
	DAY 6	50.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	
	DAY 7	50.0	25.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	20	
101-120MIN	DAY 1	42.9	14.3	0.0	28.6	14.3	0.0	0.0	0.0	0.0	0.0	0.0	22	7
	DAY 2	42.9	14.3	0.0	28.6	14.3	0.0	0.0	0.0	0.0	0.0	0.0	21	
	DAY 3	28.6	0.0	0.0	28.6	14.3	0.0	14.3	14.3	0.0	0.0	0.0	37	
	DAY 4	14.3	0.0	14.3	42.9	0.0	14.3	14.3	0.0	0.0	0.0	0.0	36	
	DAY 5	14.3	14.3	28.6	0.0	14.3	14.3	0.0	0.0	0.0	0.0	14.3	53	
	DAY 6	0.0	28.6	28.6	0.0	14.3	0.0	0.0	14.3	0.0	14.3	0.0	39	
	DAY 7	14.3	14.3	42.9	14.3	14.3	0.0	0.0	0.0	0.0	0.0	0.0	26	
121-140MIN	DAY 1	33.3	33.3	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	3
	DAY 2	66.7	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	
	DAY 3	0.0	66.7	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	
	DAY 4	33.3	0.0	33.3	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	31	
	DAY 5	0.0	33.3	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	33.3	90	
	DAY 6	33.3	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	33.3	0.0	50	
	DAY 7	33.3	0.0	33.3	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	25	
>140MIN	DAY 1	41.2	23.5	5.9	5.9	0.0	5.9	5.9	11.8	0.0	0.0	0.0	25	17
	DAY 2	35.3	11.8	5.9	11.8	5.9	5.9	5.9	0.0	0.0	0.0	17.6	38	
	DAY 3	11.8	23.5	23.5	0.0	11.8	5.9	0.0	0.0	0.0	5.9	17.6	48	
	DAY 4	5.9	29.4	5.9	17.6	17.6	11.8	5.9	0.0	0.0	0.0	5.9	38	
	DAY 5	11.8	11.8	35.3	0.0	23.5	5.9	0.0	0.0	5.9	0.0	5.9	38	
	DAY 6	29.4	41.2	0.0	17.6	5.9	0.0	0.0	0.0	0.0	0.0	5.9	27	
	DAY 7	47.1	23.5	17.6	0.0	0.0	0.0	11.8	0.0	0.0	0.0	0.0	19	
TOTAL	DAY 1	43.3	21.7	6.7	10.0	6.7	5.0	3.3	3.3	0.0	0.0	0.0	22	60
	DAY 2	33.3	23.3	10.0	13.3	8.3	1.7	1.7	0.0	0.0	0.0	8.3	28	
	DAY 3	20.0	18.3	18.3	11.7	8.3	3.3	8.3	1.7	0.0	1.7	8.3	39	
	DAY 4	15.0	15.0	11.7	23.3	10.0	13.3	3.3	0.0	0.0	0.0	8.3	39	
	DAY 5	15.0	25.0	18.3	5.0	15.0	10.0	0.0	0.0	5.0	0.0	6.7	40	
	DAY 6	23.3	28.3	8.3	10.0	8.3	3.3	1.7	5.0	0.0	3.3	8.3	37	
	DAY 7	33.3	25.0	18.3	6.7	5.0	0.0	8.3	1.7	0.0	0.0	1.7	25	

TABLE 20. Duration Vs Maximum 3-Hour ap Distribution for 3 or 4 Importance Flares.

DURATION	DAYS AFTER	MAXIMUM 3-HOUR AP — PERCENT FREQUENCY OF OCCURRENCE												MEAN	FLARE COUNT
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150		
1-20MIN	DAY 1	10.0	50.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	10.0	47	10
	DAY 2	20.0	30.0	20.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	43	
	DAY 3	40.0	10.0	0.0	10.0	0.0	0.0	0.0	20.0	0.0	0.0	10.0	10.0	59	
	DAY 4	20.0	10.0	10.0	0.0	10.0	0.0	10.0	10.0	10.0	0.0	0.0	20.0	76	
	DAY 5	0.0	10.0	30.0	10.0	0.0	0.0	0.0	10.0	10.0	10.0	10.0	10.0	77	
	DAY 6	0.0	10.0	20.0	10.0	0.0	0.0	20.0	0.0	0.0	0.0	10.0	30.0	102	
	DAY 7	0.0	20.0	30.0	0.0	10.0	10.0	0.0	0.0	0.0	10.0	0.0	20.0	64	
21-40MIN	DAY 1	0.0	66.7	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	33	3
	DAY 2	0.0	0.0	0.0	0.0	33.3	0.0	33.3	33.3	0.0	0.0	0.0	0.0	65	
	DAY 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	33.3	0.0	0.0	33.3	127	
	DAY 4	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	33.3	116	
	DAY 5	0.0	0.0	33.3	0.0	0.0	0.0	33.3	0.0	0.0	0.0	33.3	0.0	74	
	DAY 6	0.0	0.0	0.0	33.3	0.0	0.0	33.3	0.0	0.0	0.0	0.0	33.3	93	
	DAY 7	33.3	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	33.3	0.0	0.0	62	
41-60MIN	DAY 1	0.0	60.0	0.0	0.0	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	42	5
	DAY 2	20.0	0.0	60.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	
	DAY 3	0.0	0.0	40.0	40.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	39	
	DAY 4	0.0	0.0	0.0	40.0	20.0	20.0	0.0	20.0	0.0	0.0	0.0	0.0	51	
	DAY 5	0.0	60.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	
	DAY 6	20.0	20.0	20.0	20.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	40	
	DAY 7	0.0	0.0	40.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	40.0	101	
61-80MIN	DAY 1	9.1	27.3	9.1	0.0	9.1	0.0	9.1	18.2	9.1	0.0	9.1	0.0	52	11
	DAY 2	9.1	18.2	18.2	0.0	0.0	9.1	9.1	18.2	9.1	0.0	9.1	0.0	54	
	DAY 3	9.1	18.2	18.2	9.1	9.1	0.0	0.0	0.0	9.1	9.1	9.1	9.1	60	
	DAY 4	9.1	18.2	9.1	9.1	18.2	0.0	0.0	9.1	0.0	9.1	9.1	9.1	64	
	DAY 5	9.1	9.1	9.1	9.1	9.1	9.1	9.1	0.0	9.1	9.1	0.0	18.2	100	
	DAY 6	9.1	9.1	27.3	9.1	0.0	0.0	9.1	9.1	9.1	0.0	0.0	18.2	76	
	DAY 7	9.1	36.4	27.3	0.0	0.0	9.1	0.0	0.0	9.1	0.0	0.0	9.1	42	
81-100MIN	DAY 1	25.0	0.0	50.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	4
	DAY 2	0.0	25.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0	0.0	0.0	25.0	81	
	DAY 3	0.0	0.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0	0.0	0.0	50.0	177	
	DAY 4	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0	25.0	25.0	115	
	DAY 5	0.0	25.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	46	
	DAY 6	25.0	25.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	
	DAY 7	0.0	0.0	50.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	61	
101-120MIN	DAY 1	14.3	28.6	0.0	0.0	0.0	28.6	14.3	14.3	0.0	0.0	0.0	0.0	42	7
	DAY 2	14.3	28.6	0.0	14.3	0.0	0.0	28.6	14.3	0.0	0.0	0.0	0.0	41	
	DAY 3	14.3	14.3	0.0	0.0	14.3	0.0	0.0	14.3	14.3	0.0	14.3	14.3	79	
	DAY 4	0.0	14.3	0.0	14.3	14.3	14.3	0.0	0.0	14.3	14.3	14.3	0.0	71	
	DAY 5	0.0	14.3	14.3	0.0	14.3	14.3	0.0	14.3	0.0	14.3	0.0	14.3	105	
	DAY 6	0.0	0.0	28.6	0.0	14.3	0.0	0.0	28.6	0.0	0.0	28.6	0.0	74	
	DAY 7	0.0	14.3	0.0	28.6	14.3	28.6	0.0	0.0	14.3	0.0	0.0	0.0	50	
121-140MIN	DAY 1	0.0	33.3	0.0	33.3	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	34	3
	DAY 2	0.0	66.7	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	28	
	DAY 3	0.0	0.0	33.3	33.3	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	52	
	DAY 4	0.0	0.0	33.3	0.0	0.0	0.0	33.3	0.0	0.0	33.3	0.0	0.0	68	
	DAY 5	0.0	0.0	33.3	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	33.3	167	
	DAY 6	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	94	
	DAY 7	0.0	33.3	0.0	0.0	33.3	33.3	0.0	0.0	0.0	0.0	0.0	0.0	39	
>140MIN	DAY 1	5.9	35.3	23.5	5.9	0.0	0.0	0.0	5.9	0.0	0.0	11.8	11.8	59	17
	DAY 2	23.5	5.9	17.6	5.9	0.0	0.0	5.9	5.9	0.0	5.9	0.0	29.4	82	
	DAY 3	0.0	11.8	5.9	17.6	5.9	17.6	5.9	0.0	0.0	5.9	5.9	23.5	87	
	DAY 4	0.0	5.9	17.6	11.8	11.8	5.9	11.8	11.8	5.9	11.8	0.0	5.9	65	
	DAY 5	5.9	5.9	0.0	23.5	11.8	0.0	17.6	11.8	5.9	0.0	0.0	17.6	76	
	DAY 6	5.9	11.8	35.3	17.6	0.0	11.8	5.9	5.9	0.0	0.0	0.0	5.9	51	
	DAY 7	0.0	35.3	23.5	17.6	0.0	5.9	5.9	0.0	0.0	5.9	0.0	5.9	40	
TOTAL	DAY 1	8.3	36.7	13.3	6.7	1.7	5.0	5.0	10.0	1.7	0.0	6.7	5.0	47	60
	DAY 2	15.0	18.3	18.7	6.7	5.0	3.3	8.3	10.0	1.7	1.7	1.7	11.7	57	
	DAY 3	10.0	10.0	10.0	13.3	8.3	5.0	1.7	10.0	6.7	3.3	6.7	16.7	79	
	DAY 4	5.0	10.0	10.0	10.0	11.7	8.3	6.7	8.3	8.3	8.3	5.0	10.0	72	
	DAY 5	3.3	13.3	15.0	13.3	8.3	3.3	8.3	8.3	5.0	6.7	3.3	13.3	82	
	DAY 6	6.7	11.7	23.3	12.0	1.7	3.3	8.3	5.7	1.7	1.7	8.3	11.7	68	
	DAY 7	3.3	23.3	23.3	10.0	5.0	10.0	5.0	0.0	3.3	5.0	0.0	11.7	54	

TABLE 21. Longitude Vs Mean Ap and Flare Count for All Importance Flares.

MEAN DAILY AP AND MAXIMUM 3-HOUR AP

LONGITUDE	DAYS AFTER	IMP 0 DAY AP	IMP 0 3HR AP	IMP 0 FLARE COUNT	IMP 1 DAY AP	IMP 1 3HR AP	IMP 1 FLARE COUNT	IMP 2 DAY AP	IMP 2 3HR AP	IMP 2 FLARE COUNT	IMP 3 DAY AP	IMP 3 3HR AP	IMP 3 FLARE COUNT	IMP 4 DAY AP	IMP 4 3HR AP	IMP 4 FLARE COUNT	TOTAL DAY AP	TOTAL 3HR AP	TOTAL FLARE COUNT
EAST LIMB	DAY 1	16	33	2524	16	32	355	15	31	56	17	31	10	9	12	2	16	33	2947
(90E-61E)	DAY 2	17	34		15	31		15	32		13	23		13	22		16	34	
	DAY 3	17	35		17	36		16	36		25	59		21	39		17	35	
	DAY 4	18	37		20	41		22	43		37	70		34	48		18	39	
	DAY 5	19	38		22	44		30	58		67	137		89	236		20	40	
	DAY 6	18	37		20	41		23	46		55	95		122	300		19	38	
	DAY 7	18	37		21	44		17	36		40	75		62	154		18	38	
60E-31E	DAY 1	18	36	4684	16	37	619	19	39	111	20	50	15	14	24	2	18	36	5431
	DAY 2	18	37		20	41		21	44		29	67		12	35		18	38	
	DAY 3	18	37		20	41		23	42		32	67		37	108		18	38	
	DAY 4	18	38		21	43		22	44		34	65		70	132		19	38	
	DAY 5	19	39		19	40		20	44		25	50		37	82		19	39	
	DAY 6	18	37		18	39		18	37		27	49		72	106		18	37	
	DAY 7	17	35		17	36		20	41		21	46		22	69		17	35	
CENTRAL	DAY 1	18	37	10040	17	35	1214	21	41	196	29	64	22	8	18	1	18	37	11473
(30E-30W)	DAY 2	18	37		18	36		22	49		41	82		14	18		18	37	
	DAY 3	18	37		18	38		25	50		53	99		34	80		18	37	
	DAY 4	18	36		19	40		25	49		50	90		11	15		18	37	
	DAY 5	17	36		18	38		21	42		40	76		11	22		17	36	
	DAY 6	17	35		18	37		18	36		26	53		9	22		17	35	
	DAY 7	17	35		18	36		17	34		19	41		11	18		17	35	
31W-60W	DAY 1	18	37	4321	20	40	493	15	30	93	20	28	4	0	0	0	18	37	4901
	DAY 2	18	36		17	34		17	36		19	40		0	0		17	36	
	DAY 3	17	35		18	37		26	50		55	105		0	0		17	36	
	DAY 4	17	35		17	36		18	39		25	58		0	0		17	35	
	DAY 5	17	35		16	33		17	37		44	98		0	0		17	35	
	DAY 6	16	34		17	34		14	30		25	60		0	0		16	34	
	DAY 7	16	33		16	34		16	34		26	68		0	0		16	33	
WEST LIMB	DAY 1	18	37	2371	18	37	315	16	34	39	8	15	3	43	132	1	18	37	2729
(61W-90W)	DAY 2	18	36		16	34		20	45		14	34		4	7		17	36	
	DAY 3	17	35		14	36		24	54		14	41		5	9		17	36	
	DAY 4	17	35		17	35		19	38		13	22		4	7		17	35	
	DAY 5	17	34		16	34		19	37		16	24		7	18		17	34	
	DAY 6	16	32		17	33		19	36		19	37		36	67		16	32	
	DAY 7	16	33		16	32		17	34		19	37		17	22		16	33	
**********	*****	***	***	*****	***	***	*****	***	***	*****	***	***	*****	***	***	*****	***	***	*****
TOTAL	DAY 1	18	36	23940	17	36	2976	18	37	485	22	49	54	16	37	6	18	36	27481
	DAY 2	18	36		17	36		20	43		29	61		11	23		18	37	
	DAY 3	18	36		18	38		23	47		40	80		26	64		18	37	
	DAY 4	18	36		19	39		22	45		39	73		37	64		18	37	
	DAY 5	18	36		18	38		21	43		40	79		45	113		18	37	
	DAY 6	17	35		18	37		18	36		31	59		89	150		17	35	
	DAY 7	17	35		18	36		18	36		24	50		33	81		17	35	

TABLE 22. Longitude Vs Daily Ap Distribution for 0 Importance Flares.

LONGITUDE	DAYS AFTER	DAILY AP — PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
EAST LIMB	DAY 1	46.6	31.7	10.1	4.8	2.5	1.5	1.2	0.8	0.0	0.2	0.6	16	2524
(90E-61E)	DAY 2	46.2	30.2	11.0	5.9	2.6	1.2	0.7	0.9	0.4	0.3	0.7	17	
	DAY 3	43.3	30.8	11.3	7.6	3.7	1.3	0.6	0.3	0.2	0.4	0.4	17	
	DAY 4	42.7	30.9	12.4	6.5	2.7	1.5	1.1	0.5	0.3	0.2	1.1	18	
	DAY 5	40.7	30.2	13.9	6.5	3.4	1.2	1.5	0.4	0.4	0.6	1.3	19	
	DAY 6	41.6	30.7	13.1	6.1	4.1	1.4	1.0	0.6	0.3	0.2	1.0	18	
	DAY 7	40.6	33.3	12.6	5.5	3.0	1.7	0.8	1.3	0.4	0.1	0.6	18	
60E-31E	DAY 1	44.6	29.5	11.4	6.9	2.9	1.7	0.8	0.7	0.4	0.3	0.8	18	4684
	DAY 2	42.8	30.2	11.9	7.1	3.2	1.9	0.9	0.5	0.4	0.3	0.9	18	
	DAY 3	45.0	27.0	13.7	7.0	2.6	1.8	0.7	0.6	0.3	0.1	1.2	18	
	DAY 4	42.0	29.5	13.4	6.8	3.4	1.8	0.9	0.7	0.3	0.4	0.8	18	
	DAY 5	41.4	29.8	12.6	6.9	3.8	1.7	1.0	1.3	0.5	0.2	0.9	19	
	DAY 6	43.2	29.1	12.9	6.6	3.7	1.7	0.6	0.8	0.6	0.1	0.8	18	
	DAY 7	42.8	31.3	13.5	5.2	3.2	1.6	0.6	0.7	0.3	0.2	0.6	17	
CENTRAL	DAY 1	42.7	30.7	12.9	6.1	3.4	1.4	0.8	0.8	0.3	0.2	0.9	18	10040
(30E-30W)	DAY 2	41.8	30.7	13.6	6.3	3.3	1.7	0.6	0.6	0.3	0.2	1.0	18	
	DAY 3	42.3	30.9	12.2	6.4	3.7	1.7	0.8	0.5	0.3	0.3	0.8	18	
	DAY 4	42.7	29.8	12.3	6.7	4.0	1.8	0.6	0.7	0.4	0.3	0.6	18	
	DAY 5	42.2	30.6	12.9	6.6	3.7	1.8	0.8	0.5	0.2	0.2	0.4	17	
	DAY 6	41.5	30.5	14.5	6.5	3.5	1.8	0.7	0.5	0.1	0.1	0.3	17	
	DAY 7	41.4	31.7	14.5	5.2	3.5	1.7	0.8	0.6	0.1	0.1	0.3	17	
31W-60W	DAY 1	42.5	30.2	12.9	6.1	3.6	1.9	0.7	0.7	0.4	0.3	0.7	18	4321
	DAY 2	40.6	31.2	13.1	6.8	3.9	2.2	0.8	0.7	0.3	0.1	0.3	18	
	DAY 3	42.9	30.5	12.4	6.8	3.3	2.0	0.8	0.5	0.2	0.1	0.6	17	
	DAY 4	40.2	32.1	14.4	6.1	3.9	1.4	0.8	0.7	0.1	0.1	0.2	17	
	DAY 5	41.5	31.4	13.7	6.2	3.5	1.7	0.9	0.4	0.2	0.1	0.5	17	
	DAY 6	42.7	31.9	12.4	6.4	3.3	1.6	0.8	0.3	0.1	0.2	0.3	16	
	DAY 7	42.8	32.7	13.4	5.4	3.1	1.0	0.6	0.2	0.2	0.2	0.5	16	
WEST LIMB	DAY 1	42.0	26.7	16.0	7.6	3.8	1.8	0.8	0.5	0.2	0.1	0.5	18	2371
(61W-90W)	DAY 2	41.1	30.0	14.8	7.2	3.2	1.4	0.3	0.8	0.5	0.1	0.5	18	
	DAY 3	41.1	31.9	12.7	6.5	3.8	1.8	0.5	0.7	0.3	0.2	0.5	17	
	DAY 4	42.0	31.2	12.9	7.0	3.4	1.6	0.9	0.4	0.1	0.2	0.3	17	
	DAY 5	41.1	33.5	12.9	5.8	2.9	1.9	0.9	0.3	0.1	0.1	0.5	17	
	DAY 6	45.1	31.3	13.9	4.2	2.5	1.2	0.8	0.3	0.1	0.2	0.3	16	
	DAY 7	45.7	31.6	12.4	5.2	2.0	1.1	0.4	0.4	0.3	0.1	0.9	16	
TOTAL	DAY 1	43.4	30.1	12.6	6.3	3.3	1.6	0.8	0.7	0.3	0.2	0.8	18	23940
	DAY 2	42.2	30.6	13.0	6.6	3.3	1.8	0.7	0.7	0.3	0.2	0.8	18	
	DAY 3	42.9	30.2	12.5	6.7	3.4	1.8	0.7	0.5	0.2	0.2	0.8	18	
	DAY 4	42.1	30.4	13.0	6.6	3.7	1.7	0.8	0.7	0.3	0.3	0.6	18	
	DAY 5	41.6	30.8	13.1	6.5	3.6	1.7	0.9	0.6	0.3	0.2	0.6	18	
	DAY 6	42.4	30.6	13.6	6.2	3.5	1.6	0.8	0.5	0.2	0.1	0.5	17	
	DAY 7	42.3	32.0	13.7	5.3	3.2	1.5	0.7	0.6	0.2	0.1	0.5	17	

TABLE 23. Longitude Vs Maximum 3-hour ap Distribution for 0 Importance Flares.

LONGITUDE	DAYS AFTER	MAXIMUM 3-HOUR AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150	MEAN	FLARE COUNT
EAST LIMB (90E-61E)	DAY 1	16.4	30.5	17.1	16.3	4.9	2.9	2.6	2.1	2.4	1.3	1.2	2.4	33	2524
	DAY 2	15.3	30.7	15.2	16.4	5.5	3.3	3.1	2.9	3.2	0.6	1.2	2.4	34	
	DAY 3	14.9	27.1	17.3	16.2	5.4	5.0	3.6	3.5	2.3	2.1	1.0	1.6	35	
	DAY 4	14.1	27.1	17.1	16.0	5.2	6.2	3.3	3.0	1.8	1.5	1.1	2.7	37	
	DAY 5	14.7	24.2	19.5	15.4	5.4	6.1	3.8	2.7	3.3	0.6	1.4	3.0	38	
	DAY 6	14.4	25.8	18.7	15.1	6.2	5.2	4.4	2.9	1.7	0.8	1.4	2.9	37	
	DAY 7	14.7	24.9	20.2	15.9	5.2	4.4	2.8	3.5	1.3	1.3	2.2	2.9	37	
60E-31E	DAY 1	14.7	27.0	19.0	14.2	4.3	6.2	3.3	3.3	2.4	1.6	1.4	2.5	36	4644
	DAY 2	15.2	25.6	16.2	16.0	5.4	6.4	3.2	3.9	1.8	1.6	1.3	2.6	37	
	DAY 3	17.0	26.7	15.6	14.6	5.7	5.6	4.2	3.8	1.7	1.0	1.1	3.0	37	
	DAY 4	15.7	24.3	18.3	15.3	6.4	5.0	4.5	3.1	1.9	1.1	1.4	2.9	38	
	DAY 5	14.1	24.3	19.5	14.6	5.8	4.7	4.3	4.2	1.8	1.0	2.1	3.5	37	
	DAY 6	15.4	26.1	17.5	15.9	5.4	3.8	3.5	4.3	2.2	1.6	1.7	2.6	37	
	DAY 7	14.9	26.3	17.6	17.6	5.7	4.0	2.7	3.9	2.5	1.2	1.1	2.6	35	
CENTRAL (30E-30W)	DAY 1	15.2	25.7	17.8	16.1	5.8	4.7	4.0	3.1	2.2	1.2	1.5	2.6	37	10040
	DAY 2	15.0	25.2	18.3	15.7	6.1	4.8	4.2	3.4	2.1	1.1	1.2	2.9	37	
	DAY 3	14.9	25.2	19.5	14.9	5.7	4.7	3.7	4.0	2.1	1.2	1.2	2.9	37	
	DAY 4	15.3	25.6	18.2	15.7	5.1	4.4	3.4	4.0	2.8	1.3	1.3	2.8	36	
	DAY 5	15.0	26.0	18.1	16.0	4.9	4.8	3.6	4.0	2.8	1.3	1.4	2.2	36	
	DAY 6	14.4	25.7	18.2	17.2	5.6	4.9	3.7	3.7	2.3	1.4	1.2	2.0	35	
	DAY 7	14.5	25.4	19.2	17.3	5.8	3.7	3.7	3.3	2.6	1.3	1.1	2.1	35	
31W-60W	DAY 1	15.3	25.1	18.6	14.8	5.7	4.8	3.4	4.5	2.7	1.2	0.9	3.1	37	4121
	DAY 2	15.8	24.1	17.9	16.4	5.5	4.7	4.0	3.9	3.1	1.4	0.8	2.4	36	
	DAY 3	15.0	25.8	19.0	14.9	5.3	4.8	4.6	3.4	2.4	1.4	0.9	2.4	35	
	DAY 4	14.5	24.1	19.2	17.1	6.1	4.5	4.6	3.4	2.0	1.1	1.4	2.0	35	
	DAY 5	15.3	24.4	19.2	16.0	4.9	4.2	4.6	2.8	1.9	1.0	1.1	2.7	35	
	DAY 6	15.7	25.8	18.5	16.4	5.1	4.7	4.5	2.9	1.9	1.7	0.9	1.8	34	
	DAY 7	15.5	26.2	18.6	17.0	6.1	4.4	4.1	3.1	1.9	1.2	0.8	1.5	33	
WEST LIMB (61W-90W)	DAY 1	15.6	24.2	19.8	17.1	5.4	4.9	5.1	4.3	2.9	1.4	1.2	2.2	37	2371
	DAY 2	15.4	25.2	17.5	15.8	6.1	5.4	4.7	3.4	2.0	1.5	0.6	2.6	36	
	DAY 3	16.1	25.6	17.8	15.6	5.4	4.2	4.3	4.0	2.2	1.5	1.2	2.2	35	
	DAY 4	13.3	27.7	18.1	16.5	5.5	5.0	4.1	3.0	1.5	2.0	0.8	2.2	35	
	DAY 5	14.4	26.8	19.5	15.2	6.7	3.6	4.3	2.8	2.2	1.7	0.8	1.9	34	
	DAY 6	15.4	27.3	17.5	15.9	6.0	5.3	3.2	3.0	1.3	0.7	0.6	1.7	32	
	DAY 7	15.6	28.0	20.4	14.6	5.7	4.8	2.4	3.0	1.8	1.0	0.4	2.4	33	
TOTAL	DAY 1	15.3	26.2	17.2	15.6	5.4	4.9	3.7	3.4	2.4	1.3	1.3	2.6	36	23940
	DAY 2	15.3	25.7	17.2	16.0	5.8	5.0	3.9	3.5	2.3	1.2	1.1	2.7	36	
	DAY 3	15.5	25.8	18.2	15.1	5.6	4.9	4.0	3.8	2.1	1.4	1.1	2.6	36	
	DAY 4	14.9	25.5	18.4	16.0	5.6	4.8	3.9	3.5	2.3	1.3	1.3	2.6	36	
	DAY 5	14.8	25.3	18.8	15.9	5.3	4.7	4.0	3.6	2.4	1.2	1.4	2.6	36	
	DAY 6	14.9	25.9	18.3	16.4	5.6	4.7	3.9	3.5	2.0	1.4	1.2	2.1	35	
	DAY 7	14.9	25.9	19.0	16.9	5.9	4.1	3.4	3.4	2.2	1.2	1.1	2.2	35	

TABLE 24. Longitude Vs Daily Ap Distribution for 1 Importance Flares.

LONGITUDE	DAYS AFTER	DAILY AP — PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
EAST LIMB (90E-61E)	DAY 1	48.2	30.4	10.4	3.4	4.8	0.3	1.7	0.8	0.0	0.0	0.0	16	355
	DAY 2	49.9	28.5	8.2	8.2	3.7	1.1	0.3	0.3	0.0	0.0	0.0	15	
	DAY 3	44.5	31.3	8.5	7.0	5.4	1.4	0.0	0.3	0.3	0.8	0.6	17	
	DAY 4	45.4	29.6	12.4	5.9	1.4	0.8	0.4	0.0	0.0	0.8	2.8	20	
	DAY 5	39.4	26.5	15.8	6.2	2.3	2.5	1.7	0.3	0.3	0.6	2.5	22	
	DAY 6	38.0	32.6	16.3	3.1	4.9	0.9	1.1	0.8	0.8	0.0	1.7	20	
	DAY 7	42.8	31.5	8.7	4.8	2.0	2.8	0.6	2.8	1.1	0.3	2.5	21	
60E-31E	DAY 1	43.9	29.1	12.1	7.8	2.6	1.5	0.8	0.0	0.8	0.6	0.8	18	619
	DAY 2	37.5	35.4	11.5	7.9	3.7	1.3	0.8	1.0	0.0	0.3	1.6	20	
	DAY 3	41.0	30.2	12.9	6.8	2.7	1.9	1.5	0.6	0.3	0.6	1.3	20	
	DAY 4	41.2	27.5	13.1	7.8	4.2	1.6	1.1	0.6	0.8	0.5	1.6	21	
	DAY 5	40.5	28.3	13.9	7.3	3.9	2.6	1.5	0.9	0.6	0.5	0.2	19	
	DAY 6	41.4	31.7	10.5	5.0	4.5	3.9	0.6	0.8	0.6	0.2	0.8	18	
	DAY 7	44.4	28.6	11.6	6.8	4.4	1.5	1.1	1.0	0.2	0.0	0.5	17	
CENTRAL (30E-30W)	DAY 1	42.8	32.9	11.3	7.2	2.5	1.2	0.6	0.6	0.2	0.1	0.6	17	1214
	DAY 2	44.2	29.2	11.7	5.8	4.6	1.6	0.8	0.8	0.2	0.2	0.7	18	
	DAY 3	40.9	29.1	13.3	7.7	4.2	2.1	0.7	0.6	0.2	0.3	0.8	18	
	DAY 4	39.2	31.1	12.1	7.0	5.6	2.6	0.9	0.4	0.4	0.0	0.7	19	
	DAY 5	38.1	31.7	14.7	6.5	4.9	1.7	1.1	0.5	0.0	0.1	0.7	19	
	DAY 6	39.5	32.2	13.3	6.7	3.5	1.8	1.5	1.1	0.2	0.1	0.1	18	
	DAY 7	39.0	32.6	14.0	6.5	4.3	1.8	0.8	0.5	0.0	0.2	0.2	18	
31W-60W	DAY 1	38.7	30.4	13.4	6.7	4.9	2.0	1.0	0.6	0.4	0.4	1.4	20	493
	DAY 2	40.8	32.3	10.8	8.9	5.9	1.0	0.4	0.0	0.0	0.0	0.0	17	
	DAY 3	38.7	33.5	13.8	5.7	3.4	2.4	1.4	0.4	0.4	0.0	0.2	18	
	DAY 4	40.6	31.8	15.0	4.9	4.3	0.8	0.8	1.0	0.2	0.4	0.2	17	
	DAY 5	37.5	37.5	13.0	5.5	4.1	1.8	0.7	0.2	0.2	0.0	0.0	16	
	DAY 6	43.4	33.7	12.2	3.0	3.0	1.8	1.0	0.8	0.4	0.2	0.4	17	
	DAY 7	41.0	36.5	11.2	4.9	3.2	1.6	1.0	0.2	0.0	0.0	0.4	16	
WEST LIMB (61W-90W)	DAY 1	37.1	32.1	18.4	3.8	4.1	3.2	0.6	0.0	0.3	0.0	0.3	18	315
	DAY 2	42.9	28.6	17.5	7.3	1.6	0.3	0.6	0.6	0.0	0.3	0.3	16	
	DAY 3	37.8	29.8	21.9	2.9	2.2	2.9	0.6	1.0	0.0	0.0	1.0	18	
	DAY 4	37.5	37.8	9.8	7.6	3.8	1.6	1.6	0.3	0.0	0.0	0.3	17	
	DAY 5	42.5	35.3	10.5	6.3	3.5	1.3	0.3	0.3	0.0	0.3	0.6	16	
	DAY 6	44.1	33.0	11.4	4.4	2.5	1.0	1.5	0.3	0.3	0.0	1.3	17	
	DAY 7	45.4	30.8	14.0	3.8	3.2	1.6	0.3	0.0	0.6	0.0	0.3	16	
TOTAL	DAY 1	42.4	31.3	12.4	6.4	3.3	1.5	0.8	0.4	0.4	0.2	0.7	17	2996
	DAY 2	42.8	30.6	11.7	7.2	4.2	1.2	0.7	0.6	0.1	0.2	0.7	17	
	DAY 3	40.7	30.5	13.7	6.6	3.7	2.1	0.9	0.6	0.2	0.4	0.8	18	
	DAY 4	40.4	31.0	12.6	6.7	4.4	1.8	1.0	0.5	0.4	0.3	1.0	19	
	DAY 5	39.1	31.6	13.9	6.7	4.1	2.0	1.0	0.5	0.2	0.2	0.7	18	
	DAY 6	40.9	32.4	12.7	5.1	3.7	2.0	1.2	0.9	0.4	0.1	0.6	18	
	DAY 7	41.6	32.1	12.4	5.8	3.7	1.8	0.8	0.8	0.2	0.1	0.6	18	

TABLE 25. Longitude Vs Maximum 3-Hour ap Distribution for 1 Importance Flares.

LONGITUDE	DAYS AFTER	MAXIMUM 3-HOUR AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150	MEAN	FLARE COUNT
EAST LIMB	DAY 1	15.6	30.4	19.3	15.6	3.9	5.1	2.3	2.3	1.4	2.0	1.7	1.7	32	355
(90E-61E)	DAY 2	18.6	30.4	15.9	13.2	2.8	4.8	2.8	5.1	5.1	0.3	0.3	0.4	31	
	DAY 3	14.9	26.2	20.3	14.1	5.4	3.9	3.4	3.7	3.1	2.3	1.1	1.7	36	
	DAY 4	12.1	28.5	18.9	17.2	3.4	4.7	2.0	2.5	0.8	1.1	0.0	4.8	41	
	DAY 5	17.7	20.3	17.7	14.4	8.2	4.8	4.8	1.7	2.3	1.1	2.5	4.5	44	
	DAY 6	12.1	24.2	17.7	17.7	9.6	3.9	5.4	2.3	0.6	0.8	1.1	4.5	41	
	DAY 7	11.0	30.4	20.8	11.8	3.7	3.4	2.0	3.4	2.5	0.6	3.7	6.8	44	
60E-31E	DAY 1	15.3	26.0	18.4	14.4	4.2	6.1	2.7	3.9	2.9	1.9	1.5	2.6	37	619
	DAY 2	12.6	22.8	21.2	15.0	4.8	7.9	3.7	3.4	1.6	2.4	0.6	3.9	41	
	DAY 3	15.5	24.7	16.2	15.2	4.4	6.9	4.0	5.5	1.3	1.5	1.3	3.6	41	
	DAY 4	12.4	25.8	15.2	17.3	6.3	4.8	6.1	3.2	1.8	1.1	1.3	4.5	43	
	DAY 5	12.4	26.7	15.8	12.4	7.1	6.5	4.7	4.8	1.8	1.8	3.4	2.6	40	
	DAY 6	15.3	25.4	16.2	19.7	3.9	2.9	2.3	4.8	3.1	1.3	2.7	3.4	39	
	DAY 7	14.9	26.3	17.9	16.8	5.8	3.6	3.6	2.3	2.3	1.9	2.3	2.4	36	
CENTRAL	DAY 1	15.6	26.5	15.2	17.5	6.1	5.4	3.9	2.7	2.3	1.1	1.4	1.9	35	1214
(30E-30W)	DAY 2	16.1	26.4	18.5	14.0	6.1	4.0	3.3	3.7	2.4	1.5	1.3	2.3	36	
	DAY 3	15.6	24.0	17.9	14.6	5.6	4.7	4.8	4.0	3.4	1.7	1.2	2.6	39	
	DAY 4	12.3	25.1	18.2	17.1	5.0	3.5	3.5	4.9	3.6	2.2	1.0	3.5	40	
	DAY 5	11.8	24.5	19.9	16.4	6.7	4.3	2.8	4.8	3.1	2.3	1.3	2.1	38	
	DAY 6	11.7	25.5	19.3	17.3	5.9	5.1	3.3	3.5	2.7	1.9	1.7	2.1	37	
	DAY 7	13.0	24.1	21.3	15.3	6.6	5.0	3.9	3.3	2.6	1.3	1.6	1.9	36	
31W-60W	DAY 1	17.8	21.5	16.4	14.8	4.9	4.1	5.3	5.3	2.2	1.6	1.6	4.5	40	493
	DAY 2	12.2	26.2	19.3	17.0	4.7	5.7	4.9	4.1	3.0	2.2	0.4	0.4	34	
	DAY 3	12.6	24.3	20.1	13.8	5.9	5.9	6.1	4.5	1.8	2.4	0.4	2.2	37	
	DAY 4	11.6	26.8	18.5	18.9	7.3	4.1	2.6	2.8	2.6	0.6	1.6	2.4	36	
	DAY 5	14.8	22.7	23.1	15.4	5.7	5.9	5.3	1.6	1.4	1.4	1.4	1.2	33	
	DAY 6	13.2	28.4	21.3	15.0	6.7	2.6	4.3	1.8	0.6	2.8	0.6	2.6	34	
	DAY 7	12.8	27.8	20.3	17.6	4.1	4.1	3.4	3.9	1.4	2.2	0.8	1.6	34	
WEST LIMB	DAY 1	14.0	21.0	17.1	21.0	5.7	7.0	3.8	4.4	1.6	1.0	1.3	2.2	37	315
(61W-90W)	DAY 2	14.9	27.6	19.2	14.0	6.0	4.3	6.7	3.2	1.6	1.0	0.6	1.9	34	
	DAY 3	14.6	27.6	19.3	15.2	9.5	3.8	3.5	2.5	3.8	2.5	0.0	2.5	36	
	DAY 4	12.4	26.3	18.1	18.1	5.4	4.8	4.1	4.1	2.5	2.5	0.6	1.0	35	
	DAY 5	11.7	29.8	21.9	13.3	5.1	5.4	2.5	3.5	0.3	3.5	1.6	1.3	34	
	DAY 6	14.9	30.5	16.5	15.2	7.0	4.4	2.2	3.2	2.2	0.6	1.0	2.2	33	
	DAY 7	16.8	28.3	16.8	17.1	5.7	4.8	1.9	3.2	2.9	0.6	0.0	1.9	32	
TOTAL	DAY 1	15.7	25.5	16.8	16.5	5.2	5.5	3.7	3.5	2.2	1.4	1.5	2.5	36	2996
	DAY 2	14.9	26.2	18.6	14.6	5.2	5.4	3.9	3.8	2.6	1.6	1.0	2.1	35	
	DAY 3	14.9	24.8	17.8	14.6	5.8	5.2	4.5	4.2	2.7	1.9	0.9	2.6	38	
	DAY 4	12.2	26.1	17.7	17.6	5.5	4.6	3.8	3.9	2.6	1.6	1.0	3.4	39	
	DAY 5	13.1	24.7	19.6	14.9	6.6	5.2	3.8	3.8	2.2	2.0	1.9	2.3	38	
	DAY 6	13.1	26.3	19.5	17.1	6.2	4.0	3.4	3.3	2.1	1.7	1.6	2.7	37	
	DAY 7	13.5	26.4	19.2	15.8	5.6	4.3	3.3	3.2	2.4	1.4	1.7	2.5	35	

TABLE 26. Longitude Vs Daily Ap Distribution for 2 Importance Flares.

LONGITUDE	DAYS AFTER	DAILY AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
FAST LIMB	DAY 1	55.4	21.4	16.1	1.8	3.6	0.0	1.8	0.0	0.0	0.0	0.0	15	56
(90E-61E)	DAY 2	48.2	28.6	12.5	8.9	0.0	0.0	1.8	0.0	0.0	0.0	0.0	15	
	DAY 3	46.4	26.8	12.5	8.9	5.4	0.0	0.0	0.0	0.0	0.0	0.0	16	
	DAY 4	39.3	32.1	10.7	5.4	1.8	3.6	0.0	0.0	0.0	1.8	5.4	22	
	DAY 5	35.7	16.1	21.4	10.7	7.1	0.0	0.0	1.8	0.0	1.8	5.4	30	
	DAY 6	33.9	19.6	25.0	3.6	10.7	0.0	3.6	1.8	0.0	0.0	1.8	23	
	DAY 7	41.1	32.1	8.9	14.3	1.8	1.8	0.0	0.0	0.0	0.0	0.0	17	
60E-31E	DAY 1	45.9	27.0	9.0	9.0	3.6	0.0	2.7	0.0	0.9	0.0	1.8	19	111
	DAY 2	34.2	33.3	11.7	9.9	7.2	0.0	1.8	0.0	0.0	0.0	1.8	21	
	DAY 3	39.6	26.1	11.7	9.9	5.4	2.7	0.0	0.9	0.9	0.9	1.8	24	
	DAY 4	36.9	25.2	16.2	9.1	5.4	2.7	1.8	0.9	0.9	0.0	1.8	22	
	DAY 5	35.1	32.4	14.4	8.1	1.8	3.6	1.8	0.9	0.9	0.0	0.9	20	
	DAY 6	41.4	36.0	3.6	9.1	6.3	3.6	0.0	0.0	0.0	0.0	0.9	18	
	DAY 7	36.0	34.2	9.0	8.1	5.4	1.8	3.6	0.9	0.0	0.0	0.9	20	
CENTRAL	DAY 1	38.8	30.1	10.7	8.2	5.1	3.1	1.0	1.0	0.5	0.0	1.5	21	196
(30E-30W)	DAY 2	40.8	27.6	8.7	9.7	2.6	4.1	2.6	0.5	1.0	0.5	2.0	22	
	DAY 3	30.1	27.6	14.8	10.7	8.2	2.0	2.0	1.5	0.5	0.0	2.6	25	
	DAY 4	30.6	26.0	15.3	9.2	8.7	4.6	1.0	2.6	0.0	0.5	1.5	25	
	DAY 5	32.1	33.2	16.3	6.1	7.1	1.5	1.0	1.0	0.0	0.5	1.0	21	
	DAY 6	38.8	33.7	11.7	5.1	5.1	2.6	2.0	1.0	0.0	0.0	0.0	18	
	DAY 7	45.9	25.5	13.8	6.6	4.1	2.0	1.5	0.5	0.0	0.0	0.0	17	
31W-60W	DAY 1	49.4	27.7	12.0	2.4	7.2	1.2	0.0	0.0	0.0	0.0	0.0	15	83
	DAY 2	34.9	34.9	18.1	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	17	
	DAY 3	27.7	27.7	14.5	13.3	6.0	3.6	2.4	0.0	0.0	3.6	1.2	26	
	DAY 4	33.7	37.3	16.9	4.8	1.2	4.8	0.0	1.2	0.0	0.0	0.0	18	
	DAY 5	31.3	45.8	12.0	3.6	3.6	2.4	0.0	1.2	0.0	0.0	0.0	17	
	DAY 6	43.4	37.3	10.8	3.6	2.4	1.2	0.0	1.2	0.0	0.0	0.0	14	
	DAY 7	39.8	38.6	8.4	8.4	1.2	1.2	0.0	2.4	0.0	0.0	0.0	16	
WEST LIMB	DAY 1	41.0	33.3	15.4	7.7	2.6	0.0	0.0	0.0	0.0	0.0	0.0	16	39
(61W-90W)	DAY 2	23.1	25.6	33.3	17.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	
	DAY 3	20.5	33.3	28.2	2.6	0.0	7.7	2.6	2.6	0.0	0.0	2.6	24	
	DAY 4	28.2	41.0	12.8	7.7	5.1	2.6	2.6	0.0	0.0	0.0	0.0	19	
	DAY 5	38.5	30.8	17.9	7.7	2.6	0.0	0.0	0.0	0.0	2.6	0.0	19	
	DAY 6	33.3	33.3	15.4	10.3	5.1	0.0	2.6	0.0	0.0	0.0	0.0	19	
	DAY 7	41.0	33.3	7.7	7.7	5.1	2.6	2.6	0.0	0.0	0.0	0.0	17	
TOTAL	DAY 1	44.3	28.2	11.5	6.6	4.7	1.4	1.2	0.4	0.4	0.0	1.0	18	485
	DAY 2	37.7	30.1	13.4	9.7	3.7	1.6	1.6	0.2	0.4	0.2	1.2	20	
	DAY 3	33.0	27.6	14.8	10.1	6.2	2.7	1.4	1.0	0.4	0.8	1.9	23	
	DAY 4	33.4	29.7	15.1	7.6	5.6	3.9	1.0	1.4	0.2	0.4	1.6	22	
	DAY 5	33.6	33.0	15.9	6.8	4.9	1.9	0.8	1.0	0.2	0.6	1.2	21	
	DAY 6	39.2	33.2	11.5	5.8	5.6	2.1	1.4	0.8	0.0	0.0	0.4	18	
	DAY 7	41.6	31.1	10.7	8.2	3.7	1.9	1.6	0.8	0.0	0.0	0.2	18	

TABLE 27. Longitude Vs Maximum 3-Hour ap Distribution for 2 Importance Flares.

LONGITUDE	DAYS AFTER	MAXIMUM 3-HOUR AP — PERCENT FREQUENCY OF OCCURRENCE											MEAN	FLARE COUNT
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150		
EAST LIMB	DAY 1	14.3	37.5	14.3	17.9	1.8	7.1	0.0	1.8	0.0	0.0	3.6	1.8	31	56
(90E-61E)	DAY 2	10.7	33.9	25.0	10.7	1.8	5.4	0.0	1.8	7.1	0.0	3.6	0.0	32	
	DAY 3	10.7	28.6	17.9	14.3	5.4	7.1	0.0	8.9	1.8	5.4	0.0	0.0	36	
	DAY 4	19.6	21.4	19.6	12.5	7.1	3.6	1.8	1.8	1.8	1.8	0.0	7.1	43	
	DAY 5	12.5	19.6	10.7	12.5	10.7	8.9	5.4	3.9	1.8	1.8	0.0	7.1	38	
	DAY 6	8.9	23.2	14.3	7.1	21.4	0.0	12.5	3.6	0.0	0.0	3.6	5.4	46	
	DAY 7	7.1	30.4	21.4	12.5	5.4	1.8	8.9	7.1	1.8	1.8	0.0	1.8	36	
60E-31E	DAY 1	16.2	31.5	14.4	8.1	4.5	5.4	3.6	5.4	3.6	1.8	2.7	2.7	39	111
	DAY 2	15.3	15.3	21.6	15.3	3.6	8.1	4.5	7.2	1.8	2.7	1.8	2.7	44	
	DAY 3	15.3	24.3	11.7	20.7	3.6	5.4	5.4	4.5	1.8	1.8	2.7	2.7	42	
	DAY 4	13.5	22.5	15.3	14.4	8.1	6.3	4.5	5.4	1.8	0.9	2.7	4.5	44	
	DAY 5	9.0	22.5	18.9	16.2	9.9	3.6	9.0	1.8	0.9	0.9	0.9	6.3	44	
	DAY 6	17.1	18.9	26.1	16.2	1.8	1.8	3.6	2.7	3.6	4.5	1.8	1.8	37	
	DAY 7	13.5	19.8	17.1	21.6	6.3	4.5	2.7	1.8	2.7	2.7	2.7	4.5	41	
CENTRAL	DAY 1	12.2	24.5	16.3	17.3	7.7	2.0	5.1	3.6	4.6	2.0	1.5	3.1	41	196
(30E-30W)	DAY 2	12.8	26.0	18.9	10.7	4.1	2.0	4.1	7.1	2.6	1.5	3.1	7.1	49	
	DAY 3	12.8	16.8	16.8	15.3	4.6	6.6	5.6	5.1	3.6	3.6	5.1	5.1	50	
	DAY 4	11.7	14.3	17.9	16.3	9.7	4.6	3.1	7.1	6.1	3.6	1.0	5.6	49	
	DAY 5	7.1	25.0	18.5	17.3	5.6	8.7	5.1	3.6	2.0	3.1	1.5	2.6	42	
	DAY 6	9.7	28.6	19.5	18.4	4.6	6.1	0.5	4.1	3.1	1.5	1.5	2.0	36	
	DAY 7	16.3	29.6	15.3	11.7	6.6	7.1	3.1	3.1	2.6	2.0	0.5	2.0	34	
31W-60W	DAY 1	22.9	24.1	13.3	20.5	6.0	2.4	2.4	3.6	1.2	3.6	0.0	0.0	30	83
	DAY 2	8.4	20.5	18.1	27.1	4.8	4.8	6.0	4.8	3.6	0.0	1.2	0.0	36	
	DAY 3	4.8	21.7	14.5	16.9	7.2	7.2	12.0	2.4	1.2	3.6	0.0	8.4	50	
	DAY 4	9.6	22.9	16.9	27.1	4.8	3.6	2.4	1.2	4.8	1.2	1.2	3.6	39	
	DAY 5	4.8	20.5	32.5	13.3	9.6	3.6	4.8	1.2	6.0	1.2	1.2	1.2	37	
	DAY 6	14.5	27.7	28.9	13.3	4.8	2.4	3.6	0.0	0.0	1.2	2.4	1.2	30	
	DAY 7	13.3	25.3	19.3	21.7	2.4	2.4	8.4	2.4	0.0	2.4	1.2	1.2	34	
WEST LIMB	DAY 1	5.1	28.2	20.5	28.2	2.6	5.1	0.0	7.7	2.6	0.0	0.0	0.0	34	39
(61W-90W)	DAY 2	2.6	20.5	10.3	7.7	12.8	25.6	12.8	5.1	0.0	2.6	0.0	0.0	45	
	DAY 3	10.3	17.9	20.5	7.7	10.3	2.6	0.0	5.1	10.3	7.7	0.0	7.7	54	
	DAY 4	12.8	25.6	7.7	23.1	10.3	2.6	7.7	0.0	2.6	5.1	2.6	0.0	38	
	DAY 5	5.1	30.8	25.6	15.4	2.6	5.1	2.6	5.1	0.0	2.6	2.6	2.6	37	
	DAY 6	5.1	25.6	20.5	17.9	7.7	7.7	7.7	5.1	0.0	2.6	0.0	0.0	36	
	DAY 7	12.8	28.2	28.2	7.7	5.1	2.6	2.6	2.6	7.7	0.0	0.0	2.6	34	
TOTAL	DAY 1	14.6	27.8	15.5	16.7	5.6	3.7	3.3	4.1	3.1	1.9	1.6	2.1	37	495
	DAY 2	11.5	23.1	19.5	14.4	4.5	6.2	4.7	6.0	2.9	1.4	2.3	3.5	43	
	DAY 3	11.5	20.8	15.7	15.7	5.4	6.2	5.6	4.9	3.1	3.7	2.7	4.7	47	
	DAY 4	12.8	19.4	16.5	17.9	7.8	4.5	3.5	4.7	4.1	2.5	1.4	4.7	45	
	DAY 5	7.6	23.5	20.9	15.7	7.6	6.4	5.8	3.5	2.3	2.1	1.2	3.7	43	
	DAY 6	11.8	25.4	22.1	15.7	6.2	3.9	3.7	3.1	2.1	2.1	1.9	2.3	36	
	DAY 7	13.8	26.6	18.1	15.5	5.6	4.7	4.5	3.1	2.5	2.1	1.0	2.5	36	

TABLE 28. Longitude Vs Daily Ap Distribution for 3 or 4 Importance Flares.

LONGITUDE	DAYS AFTER	DAILY AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
EAST LIMB (90E-61E)	DAY 1	58.3	16.7	8.3	8.3	8.3	0.0	0.0	0.0	0.0	0.0	0.0	16	12
	DAY 2	50.0	33.3	8.3	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	13	
	DAY 3	16.7	25.0	33.3	16.7	0.0	0.0	0.0	8.3	0.0	0.0	0.0	25	
	DAY 4	16.7	8.3	0.0	33.3	8.3	25.0	8.3	0.0	0.0	0.0	0.0	37	
	DAY 5	8.3	16.7	16.7	0.0	16.7	0.0	0.0	0.0	25.0	0.0	16.7	70	
	DAY 6	16.7	0.0	16.7	8.3	8.3	8.3	0.0	0.0	0.0	16.7	25.0	75	
	DAY 7	16.7	8.3	33.3	0.0	8.3	0.0	25.0	0.0	0.0	0.0	8.3	44	
60E-31E	DAY 1	41.2	23.5	11.8	17.6	0.0	0.0	5.9	0.0	0.0	0.0	0.0	19	17
	DAY 2	23.5	29.4	11.8	11.8	11.8	0.0	5.9	0.0	0.0	0.0	5.9	27	
	DAY 3	29.4	11.8	17.6	11.8	11.8	0.0	11.8	0.0	0.0	0.0	5.9	32	
	DAY 4	23.5	11.8	23.5	5.9	5.9	11.8	0.0	0.0	0.0	0.0	11.8	38	
	DAY 5	17.6	35.3	11.8	5.9	11.8	17.6	0.0	0.0	0.0	0.0	0.0	27	
	DAY 6	17.6	47.1	5.9	11.8	0.0	5.9	0.0	0.0	0.0	0.0	11.8	32	
	DAY 7	35.3	23.5	23.5	5.9	5.9	0.0	5.9	0.0	0.0	0.0	0.0	21	
CENTRAL (30E-30W)	DAY 1	26.1	30.4	4.3	8.7	8.7	8.7	4.3	8.7	0.0	0.0	0.0	28	23
	DAY 2	26.1	13.0	8.7	26.1	4.3	4.3	0.0	0.0	0.0	0.0	17.4	39	
	DAY 3	13.0	17.4	13.0	13.0	8.7	8.7	8.7	0.0	0.0	0.0	17.4	52	
	DAY 4	0.0	17.4	4.3	30.4	17.4	13.0	4.3	0.0	0.0	0.0	13.0	48	
	DAY 5	17.4	17.4	26.1	8.7	17.4	4.3	0.0	0.0	0.0	0.0	8.7	39	
	DAY 6	30.4	26.1	8.7	4.3	17.4	0.0	4.3	8.7	0.0	0.0	0.0	25	
	DAY 7	39.1	30.4	13.0	8.7	4.3	0.0	4.3	0.0	0.0	0.0	0.0	19	
31W-60W	DAY 1	75.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	20	4
	DAY 2	50.0	25.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	19	
	DAY 3	0.0	25.0	0.0	0.0	25.0	0.0	25.0	0.0	0.0	25.0	0.0	55	
	DAY 4	25.0	25.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	
	DAY 5	0.0	0.0	25.0	0.0	25.0	50.0	0.0	0.0	0.0	0.0	0.0	44	
	DAY 6	50.0	25.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	26	
	DAY 7	50.0	25.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	26	
WEST LIMB (61W-90W)	DAY 1	75.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	17	4
	DAY 2	50.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	
	DAY 3	50.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	
	DAY 4	50.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	
	DAY 5	25.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	
	DAY 6	0.0	50.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	
	DAY 7	25.0	50.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	
TOTAL	DAY 1	43.3	21.7	6.7	10.0	6.7	5.0	3.3	3.3	0.0	0.0	0.0	22	60
	DAY 2	33.3	23.3	10.0	13.3	8.3	1.7	1.7	0.0	0.0	0.0	3.3	28	
	DAY 3	20.0	18.3	18.3	11.7	8.3	3.3	8.3	1.7	0.0	1.7	8.3	39	
	DAY 4	15.0	15.0	11.7	23.3	10.0	13.3	3.3	0.0	0.0	0.0	8.3	39	
	DAY 5	15.0	25.0	18.3	5.0	15.0	10.0	0.0	0.0	5.0	0.0	6.7	40	
	DAY 6	23.3	28.3	8.3	10.0	8.3	3.3	1.7	5.0	0.0	3.3	8.3	37	
	DAY 7	33.3	25.0	18.3	6.7	5.0	0.0	8.3	1.7	0.0	0.0	1.7	25	

TABLE 29. Longitude Vs Maximum 3-Hour ap Distribution for 3 or 4 Importance Flares.

LONGITUDE	DAYS AFTER	MAXIMUM 3-HOUR AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150	MEAN	FLARE COUNT
EAST LIMB	DAY 1	0.0	66.7	8.3	0.0	0.0	16.7	0.0	8.3	0.0	0.0	0.0	0.0	28	12
(90E-61E)	DAY 2	8.3	41.7	33.3	8.3	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	23	
	DAY 3	0.0	16.7	16.7	33.3	0.0	0.0	0.0	8.3	16.7	0.0	0.0	8.3	56	
	DAY 4	0.0	8.3	8.3	8.3	25.0	8.3	0.0	16.7	0.0	16.7	8.3	0.0	66	
	DAY 5	8.3	0.0	8.3	16.7	0.0	0.0	8.3	16.7	0.0	0.0	0.0	41.7	153	
	DAY 6	8.3	8.3	0.0	8.3	0.0	0.0	16.7	8.3	0.0	8.3	16.7	25.0	129	
	DAY 7	0.0	16.7	8.3	0.0	25.0	0.0	8.3	0.0	8.3	0.0	0.0	33.3	68	
60E-31E	DAY 1	5.9	29.4	11.8	11.8	5.9	5.9	5.9	11.8	0.0	0.0	11.8	0.0	47	17
	DAY 2	5.9	11.8	17.6	5.9	11.8	11.8	0.0	17.6	5.9	0.0	0.0	11.8	63	
	DAY 3	11.8	17.6	5.9	11.8	5.9	5.9	5.9	5.9	5.9	0.0	5.9	17.6	72	
	DAY 4	5.9	11.8	11.8	11.8	11.8	5.9	5.9	11.8	5.9	0.0	5.9	11.8	73	
	DAY 5	0.0	23.5	17.6	11.8	5.9	0.0	17.6	5.9	0.0	5.9	11.8	0.0	54	
	DAY 6	5.9	5.9	23.5	35.3	0.0	5.9	5.9	0.0	0.0	0.0	5.9	11.8	56	
	DAY 7	5.9	11.8	35.3	17.6	0.0	5.9	0.0	0.0	5.9	11.8	0.0	5.9	49	
CENTRAL	DAY 1	13.0	17.4	21.7	8.7	0.0	0.0	8.7	8.7	4.3	0.0	4.3	13.0	62	23
(30E-30W)	DAY 2	21.7	13.0	4.3	4.3	4.3	0.0	13.0	8.7	0.0	4.3	4.3	21.7	79	
	DAY 3	8.7	4.3	8.7	4.3	13.0	8.7	0.0	13.0	0.0	8.7	13.0	17.4	99	
	DAY 4	0.0	4.3	13.0	4.3	8.7	8.7	8.7	4.3	17.4	8.7	4.3	17.4	87	
	DAY 5	4.3	8.7	17.4	13.0	8.7	8.7	4.3	8.7	4.3	13.0	0.0	8.7	74	
	DAY 6	8.7	8.7	34.8	8.7	4.3	4.3	0.0	13.0	4.3	0.0	8.7	4.3	51	
	DAY 7	4.3	34.8	17.4	8.7	0.0	21.7	4.3	0.0	0.0	4.3	0.0	4.3	40	
31W-60W	DAY 1	25.0	50.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	28	4
	DAY 2	0.0	25.0	25.0	25.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	40	
	DAY 3	0.0	0.0	0.0	25.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	50.0	105	
	DAY 4	0.0	25.0	0.0	25.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0	0.0	58	
	DAY 5	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	50.0	0.0	0.0	25.0	98	
	DAY 6	0.0	50.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	60	
	DAY 7	0.0	50.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	68	
WEST LIMB	DAY 1	0.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	44	4
(61W-90W)	DAY 2	50.0	0.0	25.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	28	
	DAY 3	50.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	33	
	DAY 4	50.0	25.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	
	DAY 5	0.0	50.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	
	DAY 6	0.0	25.0	25.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	45	
	DAY 7	0.0	0.0	75.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	33	
TOTAL	DAY 1	8.3	36.7	13.3	6.7	1.7	5.0	5.0	10.0	1.7	0.0	6.7	5.0	47	60
	DAY 2	15.0	18.3	16.7	6.7	5.0	3.3	8.3	10.0	1.7	1.7	1.7	11.7	57	
	DAY 3	10.0	10.0	10.0	13.3	8.7	5.0	1.7	10.0	6.7	3.3	6.7	16.7	79	
	DAY 4	5.0	10.0	10.0	10.0	11.7	6.7	6.7	8.3	3.3	8.3	5.0	10.0	72	
	DAY 5	3.3	13.3	15.0	13.3	8.7	3.3	8.3	8.3	5.0	6.7	3.3	13.3	82	
	DAY 6	6.7	11.7	23.3	15.0	1.7	3.3	8.3	6.7	1.7	1.7	8.3	11.7	68	
	DAY 7	3.3	23.3	23.3	10.0	5.0	10.0	5.0	0.0	3.3	5.0	0.0	11.7	54	

TABLE 30. Latitude Vs Mean Ap and Flare Count for All Importance Flares.

MEAN DAILY AP AND MAXIMUM 3-HOUR AP

LATITUDE	DAYS AFTER	IMP 0 DAY AP	IMP 0 3HR AP	IMP 0 FLARE COUNT	IMP 1 DAY AP	IMP 1 3HR AP	IMP 1 FLARE COUNT	IMP 2 DAY AP	IMP 2 3HR AP	IMP 2 FLARE COUNT	IMP 3 DAY AP	IMP 3 3HR AP	IMP 3 FLARE COUNT	IMP 4 DAY AP	IMP 4 3HR AP	IMP 4 FLARE COUNT	TOTAL DAY AP	TOTAL 3HR AP	TOTAL FLARE COUNT
N. POLAR (>=40N)	DAY 1	22	39	25	10	22	5	0	0	0	0	0	0	0	0	0	20	37	30
	DAY 2	15	33		12	29		0	0		0	0		0	0		15	32	
	DAY 3	13	24		8	16		0	0		0	0		0	0		12	23	
	DAY 4	13	28		7	14		0	0		0	0		0	0		12	26	
	DAY 5	12	27		10	24		0	0		0	0		0	0		11	26	
	DAY 6	14	34		13	24		0	0		0	0		0	0		14	32	
	DAY 7	10	19		14	28		0	0		0	0		0	0		11	20	
N. MIDLAT (15N-39N)	DAY 1	17	35	5578	15	33	767	15	31	122	28	76	14	12	30	3	17	35	6484
	DAY 2	17	36		16	33		17	36		37	78		12	31		17	35	
	DAY 3	17	35		18	36		23	48		49	101		31	85		17	36	
	DAY 4	17	36		19	41		21	46		56	102		58	104		18	37	
	DAY 5	17	36		19	39		19	40		53	111		54	133		18	36	
	DAY 6	17	35		19	39		17	35		39	72		105	170		17	36	
	DAY 7	16	33		17	36		17	36		29	63		35	97		16	34	
N. EQUATOR (0-14N)	DAY 1	17	36	5952	18	38	742	21	42	122	18	35	16	9	12	1	17	36	6833
	DAY 2	17	35		19	38		23	48		16	34		13	22		17	36	
	DAY 3	17	36		20	40		24	46		22	48		21	39		18	36	
	DAY 4	17	36		20	41		23	44		31	67		34	68		18	37	
	DAY 5	18	38		19	40		22	46		39	80		88	236		18	38	
	DAY 6	17	36		19	40		17	36		32	57		172	300		18	36	
	DAY 7	17	35		19	40		17	35		19	43		62	154		17	36	
S. EQUATOR (15S-14S)	DAY 1	18	37	6153	19	40	747	19	39	123	25	45	13	8	18	1	18	37	7037
	DAY 2	19	38		18	37		20	44		36	68		14	18		19	38	
	DAY 3	19	38		19	38		22	45		58	109		38	80		19	36	
	DAY 4	18	38		18	37		24	46		37	71		11	15		18	39	
	DAY 5	18	37		18	36		21	43		36	71		11	22		18	37	
	DAY 6	17	36		17	35		18	36		22	46		9	22		17	36	
	DAY 7	18	37		18	36		18	36		23	46		11	18		18	36	
S. MIDLAT (14S-39S)	DAY 1	18	36	6162	17	35	725	19	36	116	19	39	11	43	132	1	18	35	7015
	DAY 2	18	37		17	36		20	45		30	71		4	7		18	37	
	DAY 3	17	36		18	38		24	51		34	65		5	9		18	36	
	DAY 4	17	36		18	38		22	43		31	48		4	7		18	37	
	DAY 5	17	36		17	36		22	43		29	45		7	18		17	36	
	DAY 6	17	34		16	33		20	39		32	62		36	67		17	34	
	DAY 7	16	34		16	34		19	37		27	51		17	22		17	34	
S. POLAR (<=40S)	DAY 1	17	32	70	17	38	10	16	22	2	0	0	0	0	0	0	17	37	82
	DAY 2	16	31		14	30		13	30		0	0		0	0		16	31	
	DAY 3	16	29		14	29		8	12		0	0		0	0		15	29	
	DAY 4	15	27		14	28		9	16		0	0		0	0		14	27	
	DAY 5	15	29		10	25		14	27		0	0		0	0		14	28	
	DAY 6	13	26		9	19		12	25		0	0		0	0		12	25	
	DAY 7	11	22		12	28		7	16		0	0		0	0		11	23	
TOTAL	DAY 1	18	36	23940	17	36	2996	18	37	485	22	49	54	16	37	6	18	36	27481
	DAY 2	18	36		17	36		20	43		29	61		11	23		18	37	
	DAY 3	18	36		18	38		23	47		40	80		26	64		18	37	
	DAY 4	18	36		19	39		22	45		39	73		37	64		18	37	
	DAY 5	18	36		18	38		21	43		40	79		45	113		18	37	
	DAY 6	17	35		18	37		18	36		31	59		89	156		17	35	
	DAY 7	17	[illegible]		18	36		18	36		24	50		33	81		17	35	

TABLE 31. Latitude Vs Daily Ap Distribution for 0 Importance Flares.

LATITUDE	DAYS AFTER	DAILY AP — PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
N. POLAR	DAY 1	40.0	_40.0	8.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	8.0	22	25
(>=40N)	DAY 2	36.0	_44.0	12.0	4.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	15	
	DAY 3	48.0	_40.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	
	DAY 4	36.0	_48.0	12.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	13	
	DAY 5	_56.0	32.0	8.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	
	DAY 6	44.0	_40.0	12.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	14	
	DAY 7	_68.0	28.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	
N. MIDLAT	DAY 1	45.4	_30.3	11.6	5.6	2.9	1.4	0.6	0.9	0.2	0.2	0.9	17	5570
(15N-39N)	DAY 2	44.1	_30.6	11.9	6.1	2.9	2.0	0.5	0.6	0.4	0.1	0.8	17	
	DAY 3	45.8	_29.3	11.0	6.1	3.4	1.8	0.7	0.7	0.2	0.2	0.7	17	
	DAY 4	43.3	_31.0	11.7	5.9	3.7	1.7	0.5	0.6	0.4	0.4	0.7	17	
	DAY 5	43.3	_31.7	11.7	5.3	3.3	1.6	0.8	0.8	0.4	0.3	0.8	17	
	DAY 6	45.4	_30.0	12.2	5.3	2.9	1.6	0.7	0.6	0.4	0.2	0.7	17	
	DAY 7	45.2	_32.7	11.5	4.6	2.6	1.4	0.5	0.6	0.2	0.1	0.6	16	
N. EQUATOR	DAY 1	42.2	_31.5	12.9	6.4	2.9	1.6	0.9	0.4	0.2	0.3	0.7	17	5952
(0-14N)	DAY 2	42.0	_31.9	13.1	6.6	2.9	1.5	0.6	0.5	0.1	0.2	0.6	17	
	DAY 3	42.4	_31.1	13.1	6.6	3.1	1.6	0.5	0.5	0.2	0.2	0.6	17	
	DAY 4	43.0	_29.6	13.2	6.4	3.5	1.7	0.9	0.7	0.2	0.3	0.5	17	
	DAY 5	41.3	_30.4	13.3	6.3	4.1	1.8	1.1	0.5	0.1	0.3	0.9	18	
	DAY 6	41.5	_30.2	14.6	6.3	3.5	1.7	0.8	0.3	0.1	0.2	0.6	17	
	DAY 7	41.0	_31.4	15.1	5.4	3.7	1.3	0.7	0.7	0.1	0.1	0.6	17	
S. EQUATOR	DAY 1	43.1	_28.8	12.7	6.6	4.2	1.7	0.9	0.7	0.4	0.2	0.7	18	6153
(1S-14S)	DAY 2	40.8	_30.4	12.8	7.1	3.9	1.9	0.8	0.7	0.5	0.2	0.9	19	
	DAY 3	40.9	_30.4	12.3	7.4	4.1	2.1	1.0	0.5	0.2	0.3	0.9	19	
	DAY 4	39.2	_31.8	13.3	7.1	4.0	1.8	1.1	0.6	0.2	0.3	0.6	18	
	DAY 5	39.3	_31.4	14.3	7.4	3.3	1.7	1.1	0.6	0.2	0.2	0.5	18	
	DAY 6	40.1	_31.5	14.0	7.0	3.6	1.8	1.0	0.6	0.1	0.2	0.2	17	
	DAY 7	39.1	_32.5	14.3	6.6	3.5	1.7	0.9	0.5	0.2	0.3	0.4	18	
S. MIDLAT	DAY 1	43.2	_29.6	13.0	6.4	3.9	1.7	0.9	0.8	0.4	0.2	0.8	18	6162
(14S-39S)	DAY 2	42.3	_29.1	13.9	6.6	3.4	1.8	0.7	0.8	0.3	0.3	0.7	18	
	DAY 3	43.1	_29.6	13.3	6.8	3.2	1.5	0.8	0.4	0.3	0.3	0.7	17	
	DAY 4	43.0	_29.0	13.5	7.0	3.5	1.6	0.7	0.8	0.3	0.2	0.6	17	
	DAY 5	42.7	_29.9	13.0	7.0	3.6	1.7	0.8	0.6	0.3	0.1	0.3	17	
	DAY 6	42.8	_30.6	13.3	6.2	3.9	1.5	0.6	0.6	0.3	0.0	0.3	17	
	DAY 7	43.6	_31.4	13.7	4.5	3.0	1.6	0.7	0.7	0.3	0.1	0.4	16	
S. POLAR	DAY 1	21.4	_50.0	35.7	1.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0	17	70
(<=40S)	DAY 2	20.0	_57.1	32.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	
	DAY 3	22.9	_45.7	28.6	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	
	DAY 4	34.3	_44.3	20.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	15	
	DAY 5	44.3	_37.1	12.9	0.0	2.9	1.4	0.0	1.4	0.0	0.0	0.0	15	
	DAY 6	_58.6	24.3	12.9	1.4	1.4	1.4	0.0	0.0	0.0	0.0	0.0	13	
	DAY 7	_57.1	25.7	5.7	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	11	
TOTAL	DAY 1	43.4	_39.1	12.6	6.3	3.3	1.6	0.8	0.7	0.3	0.2	0.8	18	23940
	DAY 2	42.2	_30.6	13.0	6.6	3.3	1.8	0.7	0.7	0.3	0.2	0.8	18	
	DAY 3	42.9	_30.2	12.5	6.7	3.4	1.8	0.7	0.5	0.2	0.2	0.8	18	
	DAY 4	42.1	_30.5	13.0	6.6	3.7	1.7	0.8	0.7	0.3	0.3	0.6	18	
	DAY 5	41.6	_30.8	13.1	6.5	3.6	1.7	0.7	0.6	0.3	0.2	0.6	18	
	DAY 6	42.4	_30.6	13.6	6.2	3.5	1.6	0.8	0.5	0.2	0.1	0.5	17	
	DAY 7	42.3	_32.0	13.7	5.3	3.2	1.5	0.7	0.6	0.2	0.1	0.5	17	

TABLE 32. Latitude Vs Maximum 3-Hour ap Distribution for 0 Importance Flares.

LATITUDE	DAYS AFTER	MAXIMUM 3-HOUR AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150	MEAN	FLARE COUNT
N. POLAR (>=40N)	DAY 1	12.0	36.0	24.0	12.0	0.0	4.0	0.0	0.0	0.0	4.0	0.0	8.0	39	25
	DAY 2	12.0	24.0	32.0	12.0	4.0	4.0	0.0	8.0	0.0	0.0	4.0	0.0	33	
	DAY 3	12.0	36.0	20.0	28.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	24	
	DAY 4	28.0	16.0	32.0	8.0	0.0	0.0	4.0	8.0	4.0	0.0	0.0	0.0	28	
	DAY 5	8.0	48.0	28.0	4.0	4.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	27	
	DAY 6	20.0	12.0	40.0	12.0	4.0	0.0	0.0	4.0	0.0	4.0	0.0	4.0	34	
	DAY 7	20.0	28.0	48.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	
N. MIDLAT (15N-39N)	DAY 1	17.1	26.5	17.9	15.3	5.5	3.8	3.7	2.6	2.0	1.5	1.0	3.1	35	5573
	DAY 2	17.4	25.2	17.7	15.5	5.6	4.5	3.7	2.8	2.0	1.7	1.0	2.9	36	
	DAY 3	17.5	26.9	17.3	14.1	5.2	4.5	4.5	2.9	1.4	1.7	1.1	2.9	35	
	DAY 4	16.3	25.7	18.7	15.2	5.3	4.4	4.4	2.9	1.8	1.3	0.8	3.2	36	
	DAY 5	15.8	26.0	18.3	16.8	5.4	4.1	3.3	2.5	2.0	1.2	1.2	3.3	36	
	DAY 6	15.7	27.8	17.3	16.9	5.4	3.8	3.4	2.5	1.6	1.6	1.4	2.6	35	
	DAY 7	15.8	27.3	19.9	16.6	5.3	3.6	3.0	2.2	1.6	1.6	0.9	2.3	33	
N. EQUATOR (0-14N)	DAY 1	14.3	25.3	19.3	16.6	5.2	5.3	3.0	3.1	2.9	1.2	1.7	2.0	36	5952
	DAY 2	14.2	26.5	18.9	16.5	6.1	4.9	3.7	2.8	2.4	1.0	1.0	2.0	35	
	DAY 3	14.1	25.9	19.3	15.7	5.8	5.2	3.5	3.7	2.2	1.4	1.0	2.2	36	
	DAY 4	15.0	25.8	19.8	15.4	5.8	4.9	3.0	3.5	2.3	1.6	1.8	2.0	36	
	DAY 5	14.7	24.7	19.7	15.4	5.2	4.5	3.8	3.4	2.6	1.6	1.8	2.7	38	
	DAY 6	14.7	25.3	19.8	16.2	5.9	5.0	3.7	3.7	2.0	1.3	1.2	2.2	36	
	DAY 7	14.4	26.4	18.7	16.1	5.8	4.2	3.2	4.2	2.5	1.0	1.3	2.2	35	
S. EQUATOR (15-14S)	DAY 1	14.3	27.0	16.7	15.0	5.6	5.5	3.9	4.7	2.3	1.2	0.9	2.8	37	6153
	DAY 2	13.7	25.3	17.2	16.7	5.2	5.3	4.2	4.7	2.6	1.1	0.9	3.2	38	
	DAY 3	14.0	25.1	18.4	15.6	5.0	5.2	4.2	4.7	2.7	1.1	1.0	3.0	38	
	DAY 4	13.0	24.5	18.5	17.3	5.3	5.0	4.7	3.8	3.0	1.1	1.0	2.8	38	
	DAY 5	13.4	25.0	18.8	16.7	5.4	4.7	4.6	4.0	3.1	0.8	1.1	2.5	37	
	DAY 6	13.1	25.7	18.4	17.1	5.7	5.0	3.9	4.1	2.7	1.3	0.8	3.1	36	
	DAY 7	12.6	24.6	19.3	18.3	5.9	4.7	3.6	3.6	3.0	1.4	0.7	2.4	37	
S. MIDLAT (14S-39S)	DAY 1	15.8	26.1	17.6	15.5	5.1	4.5	4.2	3.1	2.4	1.4	1.6	2.5	36	6162
	DAY 2	16.1	25.7	16.3	15.1	6.2	5.2	4.0	3.7	2.4	1.2	1.5	2.6	37	
	DAY 3	16.4	25.5	17.8	14.5	6.3	4.5	3.8	4.0	2.1	1.3	1.3	2.4	36	
	DAY 4	15.6	25.9	17.2	15.9	6.1	4.6	3.5	3.8	1.9	1.4	1.5	2.4	36	
	DAY 5	15.4	25.4	18.3	15.0	5.3	5.3	4.2	4.3	2.0	1.2	1.6	2.1	36	
	DAY 6	16.3	25.2	18.3	15.6	5.3	5.0	4.4	3.7	1.8	1.3	1.3	1.7	34	
	DAY 7	16.8	25.4	18.1	16.5	6.0	3.8	3.7	3.4	1.9	0.9	1.4	2.0	34	
S. POLAR (<=40S)	DAY 1	4.3	17.1	25.7	28.6	7.1	15.7	1.4	0.0	0.0	0.0	0.0	0.0	32	70
	DAY 2	5.7	20.0	24.3	30.0	1.4	15.7	1.4	1.4	0.0	0.0	0.0	0.0	31	
	DAY 3	8.6	21.4	22.9	28.6	2.9	14.3	1.4	0.0	0.0	0.0	0.0	0.0	29	
	DAY 4	5.7	31.4	28.6	24.3	0.0	7.1	1.4	0.0	0.0	1.4	0.0	0.0	27	
	DAY 5	4.3	27.1	40.0	12.9	1.4	8.6	1.4	1.4	0.0	1.4	0.0	1.4	29	
	DAY 6	4.3	27.1	47.1	11.4	0.0	7.1	0.0	1.4	0.0	1.4	0.0	0.0	26	
	DAY 7	15.7	28.6	32.9	17.1	0.0	2.9	1.4	1.4	0.0	0.0	0.0	0.0	22	
TOTAL	DAY 1	15.3	26.2	17.9	15.6	5.4	4.9	3.7	3.4	2.4	1.3	1.3	2.6	36	23940
	DAY 2	15.3	25.7	17.5	16.0	5.8	5.0	3.9	3.5	2.3	1.2	1.1	2.7	36	
	DAY 3	15.5	25.8	18.2	15.1	5.6	4.9	4.0	3.8	2.1	1.4	1.1	2.6	36	
	DAY 4	14.9	25.5	18.4	16.0	5.6	4.8	3.9	3.5	2.3	1.3	1.3	2.6	36	
	DAY 5	14.8	25.3	18.8	15.9	5.3	4.7	4.0	3.6	2.4	1.2	1.4	2.6	36	
	DAY 6	14.9	25.9	18.3	16.4	5.6	4.7	3.9	3.5	2.0	1.4	1.2	2.1	35	
	DAY 7	14.9	25.9	19.0	16.9	5.8	4.1	3.4	3.4	2.2	1.2	1.1	2.2	35	

TABLE 33. Latitude Vs Daily Ap Distribution for 1 Importance Flares.

LATITUDE	DAYS AFTER	DAILY AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
N. POLAR	DAY 1	40.0	40.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	5
(>=40N)	DAY 2	60.0	20.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	
	DAY 3	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	
	DAY 4	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	
	DAY 5	80.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	
	DAY 6	40.0	40.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	
	DAY 7	40.0	50.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	
N. MIDLAT	DAY 1	45.8	33.2	9.1	6.0	2.3	1.4	0.4	0.5	0.0	0.5	0.7	16	767
(15N-39N)	DAY 2	43.8	32.2	10.6	7.0	3.3	1.4	0.8	0.4	0.1	0.3	0.1	16	
	DAY 3	43.0	30.9	12.6	6.0	3.1	1.7	0.8	0.7	0.1	0.1	0.9	18	
	DAY 4	43.8	27.0	12.1	6.9	5.1	2.0	0.8	0.5	0.4	0.1	1.3	19	
	DAY 5	40.4	29.2	14.3	5.6	4.6	2.5	0.8	0.7	0.4	0.3	1.3	19	
	DAY 6	40.3	32.5	11.7	4.7	3.7	2.1	0.8	2.3	0.8	0.1	1.0	19	
	DAY 7	44.2	31.2	11.7	4.2	3.7	1.8	0.5	1.0	0.1	0.1	0.9	17	
N. EQUATOR	DAY 1	38.4	31.4	14.7	8.5	3.9	1.2	1.5	0.1	0.0	0.1	0.1	18	742
(0-14N)	DAY 2	41.0	30.2	12.1	7.1	5.3	1.5	0.3	0.8	0.1	0.0	1.1	19	
	DAY 3	36.5	33.8	13.7	6.1	3.2	3.8	0.5	0.4	0.0	0.7	1.2	20	
	DAY 4	37.9	31.4	13.6	6.7	4.2	2.6	0.9	0.8	0.1	0.7	1.1	20	
	DAY 5	36.3	32.5	14.4	7.5	4.6	2.3	1.1	0.0	0.3	0.3	0.8	19	
	DAY 6	36.4	33.4	13.6	5.4	4.0	1.8	1.2	0.4	0.4	0.0	1.3	19	
	DAY 7	37.9	31.8	13.2	7.1	5.4	2.2	1.1	0.3	0.1	0.1	0.8	19	
S. EQUATOR	DAY 1	39.9	31.2	11.9	7.1	4.1	2.0	0.8	0.5	0.7	0.1	1.1	19	747
(1S-14S)	DAY 2	40.8	32.4	10.7	7.8	4.7	1.2	0.4	0.8	0.0	0.3	0.9	18	
	DAY 3	44.0	26.8	11.8	8.0	4.1	1.6	1.3	0.8	0.4	0.5	0.5	19	
	DAY 4	39.5	34.1	12.7	5.0	3.9	1.9	1.3	0.4	0.1	0.1	0.9	18	
	DAY 5	37.9	33.9	13.7	7.2	3.2	1.6	1.2	0.5	0.0	0.3	0.5	18	
	DAY 6	40.3	31.6	15.3	4.7	3.3	2.4	2.1	0.0	0.3	0.0	0.0	17	
	DAY 7	39.1	34.1	11.8	7.2	3.6	1.7	1.1	0.9	0.0	0.0	0.4	18	
S. MIDLAT	DAY 1	45.9	28.4	13.9	4.3	3.0	1.4	0.7	0.6	0.8	0.1	0.8	17	725
(14S-39S)	DAY 2	45.7	26.9	13.2	7.0	3.7	0.8	1.2	0.6	0.1	0.1	0.6	17	
	DAY 3	38.5	30.3	16.6	6.2	4.4	1.5	1.0	0.4	0.4	0.1	0.6	18	
	DAY 4	39.9	31.4	12.1	8.6	4.4	0.7	1.0	0.3	0.8	0.1	0.7	18	
	DAY 5	41.2	31.0	13.5	6.5	4.1	1.5	1.0	0.7	0.1	0.1	0.1	17	
	DAY 6	44.0	32.4	10.3	5.7	3.7	1.9	0.7	0.7	0.3	0.3	0.0	16	
	DAY 7	44.8	30.8	13.1	4.7	2.3	1.5	0.7	0.8	0.7	0.3	0.3	16	
S. POLAR	DAY 1	20.0	50.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	10
(<=40S)	DAY 2	30.0	50.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	
	DAY 3	50.0	20.0	20.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	
	DAY 4	40.0	50.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	14	
	DAY 5	70.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	
	DAY 6	80.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9	
	DAY 7	60.0	30.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	
TOTAL	DAY 1	42.4	31.3	12.4	6.4	3.3	1.5	0.9	0.4	0.4	0.2	0.7	17	2996
	DAY 2	42.8	30.6	11.7	7.2	4.2	1.2	0.7	0.6	0.1	0.2	0.7	17	
	DAY 3	40.7	30.4	13.7	6.6	3.7	2.1	0.9	0.6	0.2	0.4	0.8	14	
	DAY 4	40.4	31.0	12.6	6.7	4.4	1.8	1.0	0.5	0.4	0.3	1.0	19	
	DAY 5	39.1	31.8	13.9	6.7	4.1	2.0	1.0	0.5	0.2	0.2	0.7	18	
	DAY 6	40.9	32.4	12.7	5.1	3.7	2.0	1.2	0.9	0.4	0.1	0.6	18	
	DAY 7	41.6	32.1	12.4	5.8	3.7	1.8	0.8	0.8	0.2	0.1	0.6	18	

TABLE 34. Latitude Vs Maximum 3-Hour ap Distribution for 1 Importance Flares.

LATITUDE	DAYS AFTER	MAXIMUM 3-HOUR AP — PERCENT FREQUENCY OF OCCURRENCE												MEAN	FLARE COUNT
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150		
N. POLAR (>=40N)	DAY 1	40.0	0.0	20.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	5
	DAY 2	20.0	40.0	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	29	
	DAY 3	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	
	DAY 4	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	
	DAY 5	20.0	60.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	24	
	DAY 6	20.0	40.0	20.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	
	DAY 7	20.0	0.0	40.0	20.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	28	
N. MIDLAT (15N-39N)	DAY 1	17.3	29.5	15.5	15.3	6.0	5.3	2.5	2.1	1.4	2.0	0.7	2.5	33	767
	DAY 2	17.2	24.9	19.0	15.5	7.3	3.3	3.4	2.7	2.2	2.1	0.4	2.0	33	
	DAY 3	16.3	25.4	18.3	14.1	6.6	4.2	4.6	3.5	1.6	2.5	0.3	2.7	36	
	DAY 4	11.2	29.1	16.3	14.7	5.9	4.7	5.1	3.9	2.6	1.4	0.5	4.2	41	
	DAY 5	15.4	22.9	17.7	14.6	7.5	5.5	4.6	2.3	2.3	1.8	1.3	3.9	39	
	DAY 6	13.8	24.9	17.5	19.0	6.0	3.5	2.6	2.5	1.7	2.1	1.8	4.6	39	
	DAY 7	13.4	27.8	20.2	16.0	5.5	3.9	2.5	1.7	2.1	2.9	1.3	2.7	36	
N. EQUATOR (0-14N)	DAY 1	14.2	22.5	18.1	17.7	5.1	5.7	3.8	3.2	4.4	2.0	2.0	1.3	34	742
	DAY 2	13.9	25.9	19.4	14.4	3.5	6.7	4.6	2.8	3.0	1.6	2.3	1.9	38	
	DAY 3	12.9	23.2	18.1	17.7	6.2	5.9	4.2	3.1	2.7	1.9	1.5	2.7	40	
	DAY 4	11.5	24.0	20.2	16.4	5.5	5.8	3.4	3.0	3.1	1.5	2.2	3.5	41	
	DAY 5	11.6	23.2	21.3	14.6	7.3	4.4	3.2	3.2	2.7	3.5	2.8	2.2	40	
	DAY 6	11.5	26.1	18.5	15.9	6.2	5.3	3.1	3.9	2.4	1.6	1.5	4.0	40	
	DAY 7	12.7	24.3	20.6	14.6	4.6	4.7	3.8	5.3	2.8	1.2	2.0	3.5	40	
S. EQUATOR (1S-14S)	DAY 1	12.4	24.4	17.0	17.5	4.3	6.6	4.7	5.6	1.9	0.9	0.9	3.7	40	747
	DAY 2	13.9	24.4	18.6	16.3	5.5	5.5	3.6	4.6	3.5	1.3	0.5	2.3	37	
	DAY 3	14.3	27.7	16.9	12.9	5.2	5.2	5.0	4.4	2.8	1.6	1.1	2.9	39	
	DAY 4	11.8	26.8	15.8	22.1	6.3	3.3	2.9	2.9	3.1	1.3	0.8	2.8	37	
	DAY 5	10.4	27.2	19.7	16.9	6.3	5.2	3.7	4.1	2.3	1.1	1.3	1.7	36	
	DAY 6	10.7	28.2	18.2	16.6	7.9	4.0	3.5	3.3	3.6	1.3	1.5	1.1	35	
	DAY 7	11.5	26.8	19.4	18.2	4.8	4.4	4.0	3.7	3.1	1.2	1.2	1.6	36	
S. MIDLAT (14S-39S)	DAY 1	18.9	25.8	17.0	15.0	5.5	4.1	3.9	3.0	1.2	0.8	2.3	2.3	35	725
	DAY 2	14.5	29.9	17.5	11.9	4.6	5.8	4.3	5.2	1.7	1.4	1.0	2.3	36	
	DAY 3	16.1	22.1	13.2	13.9	5.1	5.4	4.6	5.9	3.7	1.8	1.0	2.2	38	
	DAY 4	14.8	23.6	18.5	17.1	4.4	4.7	3.9	5.7	1.8	1.9	0.6	3.2	38	
	DAY 5	15.0	25.2	19.4	13.5	5.4	5.5	3.6	5.5	1.4	1.8	2.3	1.2	36	
	DAY 6	16.4	25.7	19.7	16.8	4.6	3.4	4.4	3.6	0.8	1.7	1.7	1.2	33	
	DAY 7	16.4	26.8	19.4	14.3	7.4	4.0	3.0	2.1	1.5	0.4	2.2	2.3	34	
S. POLAR (<=40S)	DAY 1	10.0	10.0	0.0	50.0	0.0	20.0	0.0	10.0	0.0	0.0	0.0	0.0	38	10
	DAY 2	10.0	20.0	10.0	40.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	30	
	DAY 3	10.0	50.0	10.0	10.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	0.0	29	
	DAY 4	0.0	40.0	30.0	20.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	28	
	DAY 5	10.0	30.0	40.0	10.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	25	
	DAY 6	10.0	50.0	30.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	
	DAY 7	20.0	30.0	10.0	10.0	10.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	28	
TOTAL	DAY 1	15.7	25.5	16.8	16.5	5.2	5.5	3.7	3.5	2.2	1.4	1.5	2.5	36	2996
	DAY 2	14.9	26.2	18.6	14.6	5.2	5.4	3.9	3.8	2.6	1.6	1.0	2.1	36	
	DAY 3	14.9	24.8	17.8	14.6	5.8	5.2	4.5	4.2	2.7	1.9	0.9	2.6	38	
	DAY 4	12.2	26.1	17.7	17.6	5.5	4.6	3.8	3.9	2.6	1.6	1.0	3.4	39	
	DAY 5	13.1	24.7	19.6	14.9	6.6	5.2	3.8	3.8	2.2	2.0	1.9	2.3	39	
	DAY 6	13.1	26.3	18.5	17.1	6.2	4.0	3.4	3.3	2.1	1.7	1.6	2.7	37	
	DAY 7	13.5	26.4	19.9	15.8	5.6	4.3	3.3	3.2	2.4	1.4	1.7	2.5	36	

TABLE 35. Latitude Vs Daily Ap Distribution for 2 Importance Flares.

LATITUDE	DAYS AFTER	DAILY AP — PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
N. MIDLAT (15N-39N)	DAY 1	53.3	27.9	9.0	4.1	0.8	2.5	1.6	0.0	0.0	0.0	0.8	15	122
	DAY 2	42.6	34.4	8.2	7.4	2.5	1.6	0.8	0.0	0.8	0.8	0.8	17	
	DAY 3	38.5	22.1	14.8	6.6	7.4	4.9	0.0	0.8	0.8	2.5	1.6	23	
	DAY 4	37.7	26.2	13.1	7.4	5.7	5.7	1.6	0.8	0.0	1.6	0.0	21	
	DAY 5	41.8	28.7	11.5	9.8	4.1	2.5	0.0	0.0	0.0	0.0	1.6	19	
	DAY 6	41.0	34.4	10.7	4.1	3.3	3.3	0.8	1.6	0.0	0.0	0.8	17	
	DAY 7	50.0	27.9	5.7	8.2	4.9	0.0	0.8	1.6	0.0	0.0	0.8	17	
N. EQUATOR (0N-14N)	DAY 1	40.2	26.2	11.5	10.7	7.4	0.8	2.5	0.0	0.0	0.0	0.8	21	122
	DAY 2	33.6	27.0	16.4	13.9	2.5	1.6	2.5	0.0	0.8	0.0	1.6	23	
	DAY 3	33.6	31.1	9.8	13.9	0.8	4.1	1.6	2.5	0.8	0.0	1.6	24	
	DAY 4	32.8	32.8	16.4	4.9	5.7	2.5	0.8	0.8	0.8	0.0	2.5	23	
	DAY 5	32.0	35.2	17.2	4.1	3.3	3.3	0.0	0.8	0.8	0.8	2.5	22	
	DAY 6	36.9	37.7	13.1	4.1	4.1	2.5	0.8	0.8	0.0	0.0	0.0	17	
	DAY 7	37.7	35.2	9.8	9.0	4.1	4.1	0.0	0.0	0.0	0.0	0.0	17	
S. EQUATOR (1S-14S)	DAY 1	39.8	32.5	9.8	7.3	5.7	1.6	0.8	0.8	0.0	0.0	1.6	19	123
	DAY 2	41.5	27.6	12.2	9.8	4.1	0.8	2.4	0.0	0.0	0.0	1.6	20	
	DAY 3	34.1	31.7	8.9	11.4	7.3	0.8	3.3	0.0	0.0	0.8	1.6	22	
	DAY 4	36.6	29.3	11.4	7.3	5.7	2.4	0.8	2.4	0.0	0.0	4.1	24	
	DAY 5	30.1	38.2	13.8	7.3	5.7	0.8	2.4	0.8	0.0	0.0	0.8	21	
	DAY 6	43.1	27.6	12.2	8.1	4.9	0.8	1.6	0.8	0.0	0.0	0.8	18	
	DAY 7	39.8	31.7	12.2	8.9	1.6	2.4	3.3	0.0	0.0	0.0	0.0	18	
S. MIDLAT (15S-39S)	DAY 1	44.0	26.7	15.5	4.3	5.2	0.9	0.0	0.9	1.7	0.0	0.9	19	116
	DAY 2	33.6	30.2	17.2	7.8	6.0	2.6	0.9	0.9	0.0	0.0	0.9	20	
	DAY 3	25.0	25.0	26.7	8.6	9.5	0.9	0.9	0.9	0.0	0.0	2.6	24	
	DAY 4	25.9	30.2	19.8	11.2	5.2	5.2	0.9	1.7	0.0	0.0	0.0	22	
	DAY 5	30.2	29.3	21.6	6.0	6.9	0.9	0.9	2.6	0.0	1.7	0.0	22	
	DAY 6	35.3	32.8	10.3	6.9	10.3	1.7	2.6	0.0	0.0	0.0	0.0	20	
	DAY 7	37.9	30.2	15.5	6.9	4.3	0.9	2.6	1.7	0.0	0.0	0.0	19	
S. POLAR (<=40S)	DAY 1	50.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	2
	DAY 2	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	
	DAY 3	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	
	DAY 4	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9	
	DAY 5	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	
	DAY 6	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	
	DAY 7	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	
TOTAL	DAY 1	44.3	28.2	11.5	6.6	4.7	1.4	1.2	0.4	0.4	0.0	1.0	18	485
	DAY 2	37.7	30.1	13.4	9.7	3.7	1.6	1.6	0.2	0.4	0.2	1.2	20	
	DAY 3	33.0	27.6	14.8	10.1	6.2	2.7	1.4	1.0	0.4	0.8	1.9	23	
	DAY 4	33.4	29.7	15.1	7.6	5.6	3.9	1.0	1.4	0.2	0.4	1.6	22	
	DAY 5	33.6	33.0	15.9	6.8	4.9	1.9	0.8	1.0	0.2	0.6	1.2	21	
	DAY 6	39.2	33.2	11.5	5.8	5.6	2.1	1.4	0.8	0.0	0.0	0.4	18	
	DAY 7	41.6	31.1	10.7	8.2	3.7	1.9	1.6	0.8	0.0	0.0	0.2	18	

TABLE 36. Latitude Vs Maximum 3-Hour ap Distribution for 2 Importance Flares.

LATITUDE	DAYS AFTER	MAXIMUM 3-HOUR AP: PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150	MEAN	FLARE COUNT
N. MIDLAT	DAY 1	19.7	34.4	13.9	12.3	8.2	1.6	1.6	1.6	1.6	0.8	2.5	1.6	31	122
(15N-39N)	DAY 2	15.6	25.4	18.9	18.9	3.3	3.3	0.8	5.7	1.6	1.6	1.6	3.3	36	
	DAY 3	14.8	22.1	9.8	18.0	4.9	4.9	7.4	3.3	0.8	4.1	3.3	6.6	48	
	DAY 4	13.1	24.6	10.7	18.9	7.4	3.3	4.9	1.6	5.7	1.6	2.5	5.7	46	
	DAY 5	12.3	23.8	18.9	15.6	7.4	3.3	7.4	1.6	3.3	2.5	0.8	3.3	40	
	DAY 6	21.3	21.3	15.6	18.9	6.6	3.3	3.3	1.6	1.6	3.3	0.8	2.5	35	
	DAY 7	13.9	32.0	18.0	13.9	4.1	3.3	3.3	1.6	2.5	2.5	0.8	4.1	36	
N. EQUATOR	DAY 1	11.5	24.6	13.1	18.0	7.4	4.1	1.6	6.6	4.9	5.7	1.6	0.8	42	122
(0N-14N)	DAY 2	8.2	27.0	13.1	14.8	6.6	12.3	1.6	3.3	3.3	1.6	4.9	3.3	48	
	DAY 3	7.4	26.2	22.1	9.8	9.0	5.7	3.3	2.5	1.6	5.7	3.3	3.3	46	
	DAY 4	12.3	17.2	21.3	17.2	9.0	5.7	1.6	4.1	1.6	4.1	0.8	4.9	44	
	DAY 5	6.6	22.1	27.0	18.0	4.9	4.1	1.6	4.1	2.5	1.6	2.5	4.9	46	
	DAY 6	8.2	32.0	19.7	17.2	6.6	4.9	0.8	2.5	1.6	0.8	2.5	3.3	36	
	DAY 7	14.8	23.0	22.1	13.1	4.9	4.1	4.9	4.9	4.1	2.5	1.6	0.0	35	
S. EQUATOR	DAY 1	9.8	28.5	17.9	18.7	4.1	4.1	5.7	4.1	1.6	0.8	0.0	4.9	39	123
(1S-14S)	DAY 2	10.6	22.0	24.4	12.2	2.4	5.7	6.5	5.7	4.1	0.8	1.6	4.1	44	
	DAY 3	9.8	21.1	17.1	19.5	1.6	8.1	6.5	4.9	3.3	0.8	1.6	5.7	45	
	DAY 4	11.4	22.8	18.3	20.3	4.1	2.4	2.4	5.7	4.9	1.6	1.6	6.5	46	
	DAY 5	6.5	24.4	13.0	19.5	9.8	8.9	4.9	4.1	2.4	3.3	0.8	2.4	43	
	DAY 6	9.8	28.5	19.5	17.1	7.3	2.4	0.8	6.5	2.4	3.3	0.8	1.6	36	
	DAY 7	13.0	26.8	13.0	19.5	7.3	5.7	3.3	4.1	1.6	3.3	0.8	1.6	36	
S. MIDLAT	DAY 1	18.1	23.3	17.2	17.2	2.6	5.2	4.3	4.3	4.3	0.0	2.6	0.9	36	116
(15S-39S)	DAY 2	12.1	18.1	20.7	11.2	6.0	3.4	10.3	9.5	2.6	1.7	0.9	3.4	45	
	DAY 3	13.8	12.9	13.8	15.5	6.0	6.0	5.2	9.5	6.9	4.3	2.6	3.4	51	
	DAY 4	13.8	12.9	17.2	15.5	11.2	6.9	5.2	7.8	4.3	2.6	0.9	1.7	43	
	DAY 5	5.2	24.1	23.3	8.6	8.6	9.5	9.5	4.3	0.9	0.9	0.9	4.3	43	
	DAY 6	7.8	19.8	32.8	9.5	4.3	5.2	10.3	1.7	2.6	0.9	3.4	1.7	39	
	DAY 7	12.9	25.0	19.0	15.5	6.0	6.0	6.9	1.7	1.7	0.0	0.9	4.3	37	
S. POLAR	DAY 1	0.0	50.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	2
(<=40S)	DAY 2	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	
	DAY 3	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	
	DAY 4	50.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	
	DAY 5	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	
	DAY 6	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	
	DAY 7	50.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	
TOTAL	DAY 1	14.6	27.8	15.5	16.7	5.6	3.7	3.3	4.1	3.1	1.9	1.6	2.1	37	485
	DAY 2	11.5	23.1	19.4	14.4	4.5	6.2	4.7	6.0	2.9	1.4	2.3	3.5	43	
	DAY 3	11.5	20.8	15.7	15.7	5.4	6.2	5.6	4.9	3.1	3.7	2.7	4.7	47	
	DAY 4	12.8	19.4	16.5	17.9	7.8	4.5	3.5	4.7	4.1	2.5	1.4	4.7	45	
	DAY 5	7.6	23.5	20.6	15.7	7.6	6.4	5.8	3.5	2.3	2.1	1.2	3.7	43	
	DAY 6	11.8	25.4	22.1	15.7	6.2	3.9	3.7	3.1	2.1	2.1	1.9	2.3	36	
	DAY 7	13.8	26.6	18.1	15.5	5.6	4.7	4.5	3.1	2.5	2.1	1.0	2.5	36	

TABLE 37. Latitude Vs Daily Ap Distribution for 3 or 4 Importance Flares.

LATITUDE	DAYS AFTER	DAILY AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
N. MIDLAT (15N-39N)	DAY 1	47.1	11.8	5.9	11.8	0.0	5.9	11.8	5.9	0.0	0.0	0.0	25	17
	DAY 2	29.4	29.4	5.9	5.9	11.8	5.9	0.0	0.0	0.0	0.0	11.8	33	
	DAY 3	11.8	17.6	5.9	11.8	17.6	11.8	11.8	0.0	0.0	5.9	5.9	46	
	DAY 4	11.8	5.9	5.9	29.4	5.9	11.8	5.9	0.0	0.0	0.0	23.5	56	
	DAY 5	0.0	17.6	23.5	5.9	11.8	23.5	0.0	0.0	5.9	0.0	11.8	53	
	DAY 6	23.5	23.5	5.9	0.0	5.9	0.0	11.8	0.0	5.9	17.6	51		
	DAY 7	41.2	17.6	17.6	5.9	0.0	0.0	5.9	5.9	0.0	0.0	5.9	29	
N. EQUATOR (0N-14N)	DAY 1	35.3	47.1	5.9	0.0	5.9	5.9	0.0	0.0	0.0	0.0	0.0	17	17
	DAY 2	41.2	29.4	17.6	5.9	5.9	0.0	0.0	0.0	0.0	0.0	0.0	16	
	DAY 3	23.5	29.4	23.5	17.6	0.0	0.0	5.9	0.0	0.0	0.0	0.0	21	
	DAY 4	17.6	11.8	17.6	29.4	5.9	17.6	0.0	0.0	0.0	0.0	0.0	32	
	DAY 5	11.8	29.4	17.6	11.8	5.9	5.9	0.0	0.0	11.8	0.0	5.9	42	
	DAY 6	35.3	35.3	0.0	0.0	0.0	5.9	0.0	5.9	0.0	5.9	11.8	40	
	DAY 7	47.1	23.5	5.9	0.0	11.8	0.0	11.8	0.0	0.0	0.0	0.0	21	
S. EQUATOR (1S-14S)	DAY 1	35.7	21.4	7.1	14.3	14.3	0.0	0.0	7.1	0.0	0.0	0.0	23	14
	DAY 2	21.4	21.4	7.1	21.4	14.3	0.0	0.0	0.0	0.0	0.0	14.3	35	
	DAY 3	7.1	21.4	14.3	14.3	14.3	0.0	0.0	7.1	0.0	0.0	21.4	57	
	DAY 4	14.3	21.4	14.3	7.1	21.4	7.1	7.1	0.0	0.0	0.0	7.1	35	
	DAY 5	21.4	35.7	28.6	0.0	0.0	7.1	0.0	0.0	0.0	0.0	7.1	34	
	DAY 6	21.4	28.6	28.6	7.1	14.3	0.0	0.0	0.0	0.0	0.0	0.0	21	
	DAY 7	28.6	21.4	35.7	0.0	7.1	0.0	7.1	0.0	0.0	0.0	0.0	23	
S. MIDLAT (15S-39S)	DAY 1	58.3	0.0	8.3	16.7	8.3	8.3	0.0	0.0	0.0	0.0	0.0	21	12
	DAY 2	41.7	8.3	8.3	25.0	0.0	0.0	8.3	0.0	0.0	0.0	8.3	28	
	DAY 3	41.7	0.0	33.3	0.0	0.0	0.0	16.7	0.0	0.0	0.0	8.3	32	
	DAY 4	16.7	25.0	8.3	25.0	8.3	16.7	0.0	0.0	0.0	0.0	0.0	29	
	DAY 5	33.3	16.7	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	27	
	DAY 6	8.3	25.0	0.0	33.3	25.0	0.0	8.3	0.0	0.0	0.0	0.0	32	
	DAY 7	8.3	41.7	16.7	25.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	26	
TOTAL	DAY 1	43.3	21.7	6.7	10.0	6.7	5.0	3.3	3.3	0.0	0.0	0.0	22	60
	DAY 2	33.3	23.3	10.0	13.3	8.3	1.7	1.7	0.0	0.0	0.0	8.3	28	
	DAY 3	20.0	18.3	18.3	1.7	8.3	3.3	8.3	1.7	0.0	1.7	8.3	39	
	DAY 4	15.0	15.0	11.7	21.7	10.0	13.3	3.3	0.0	0.0	0.0	6.3	39	
	DAY 5	15.0	25.0	18.3	5.0	15.0	10.0	0.0	0.0	5.0	0.0	6.7	40	
	DAY 6	23.3	28.3	8.3	10.0	8.3	3.3	1.7	5.0	0.0	3.3	8.3	37	
	DAY 7	33.3	25.0	18.3	6.7	5.0	0.0	8.3	1.7	0.0	0.0	1.7	25	

TABLE 38. Latitude Vs Maximum 3-Hour ap Distribution for 3 or 4 Importance Flares.

LATITUDE	DAYS AFTER	MAXIMUM 3-HOUR AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150	MEAN	FLARE COUNT
N. MIDLAT (15N-39N)	DAY 1	11.8	47.1	0.0	5.9	0.0	0.0	5.9	0.0	0.0	0.0	11.8	17.6	66	17
	DAY 2	5.9	11.8	23.5	11.8	11.8	0.0	0.0	11.8	5.9	0.0	0.0	17.6	70	
	DAY 3	11.8	0.0	5.9	17.6	0.0	0.0	0.0	11.8	11.8	5.9	11.8	23.5	99	
	DAY 4	0.0	5.9	5.9	5.9	11.8	5.9	11.8	0.0	11.8	11.8	5.9	23.5	102	
	DAY 5	0.0	0.0	5.9	17.6	5.9	0.0	11.8	0.0	11.8	11.8	11.8	23.5	115	
	DAY 6	0.0	11.8	17.6	23.5	0.0	5.9	0.0	0.0	0.0	5.9	11.8	23.5	89	
	DAY 7	5.9	29.4	11.8	5.9	5.9	5.9	0.0	0.0	5.9	11.8	0.0	17.6	69	
N. EQUATOR (0N-14N)	DAY 1	5.9	35.3	17.6	11.8	5.9	11.8	0.0	5.9	5.9	0.0	0.0	0.0	33	17
	DAY 2	23.5	23.5	23.5	0.0	5.9	11.8	0.0	5.9	0.0	0.0	5.9	0.0	33	
	DAY 3	5.9	17.6	17.6	23.5	5.9	5.9	0.0	5.9	5.9	5.9	0.0	5.9	48	
	DAY 4	0.0	11.8	17.6	11.8	11.8	0.0	11.8	5.9	5.9	11.8	5.9	5.9	66	
	DAY 5	5.9	11.8	23.5	5.9	11.8	0.0	0.0	11.8	5.9	5.9	0.0	17.6	89	
	DAY 6	17.6	23.5	29.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.6	11.8	71	
	DAY 7	5.9	29.4	23.5	5.9	5.9	11.8	0.0	0.0	0.0	0.0	0.0	17.6	49	
S. EQUATOR (1S-14S)	DAY 1	14.3	21.4	21.4	7.1	0.0	7.1	0.0	21.4	0.0	0.0	7.1	0.0	43	14
	DAY 2	7.1	21.4	7.1	14.3	0.0	0.0	21.4	7.1	0.0	7.1	0.0	14.3	65	
	DAY 3	7.1	0.0	14.3	0.0	14.3	14.3	0.0	21.4	0.0	0.0	0.0	28.6	107	
	DAY 4	7.1	14.3	7.1	14.3	0.0	14.3	0.0	7.1	14.3	7.1	7.1	7.1	67	
	DAY 5	7.1	14.3	14.3	28.6	7.1	0.0	7.1	7.1	0.0	7.1	0.0	7.1	67	
	DAY 6	7.1	0.0	28.6	28.6	7.1	7.1	0.0	14.3	7.1	0.0	0.0	0.0	45	
	DAY 7	0.0	21.4	21.4	28.6	0.0	0.0	14.3	0.0	7.1	7.1	0.0	0.0	44	
S. MIDLAT (15S-39S)	DAY 1	0.0	41.7	16.7	0.0	0.0	0.0	16.7	16.7	0.0	0.0	8.3	0.0	46	12
	DAY 2	25.0	16.7	8.3	0.0	0.0	0.0	16.7	16.7	0.0	0.0	0.0	16.7	66	
	DAY 3	16.7	25.0	0.0	8.3	8.3	0.0	8.3	0.0	8.3	0.0	16.7	8.3	61	
	DAY 4	16.7	8.3	8.3	8.3	25.0	8.3	0.0	25.0	0.0	0.0	0.0	0.0	44	
	DAY 5	0.0	33.3	16.7	0.0	0.0	16.7	16.7	16.7	0.0	0.0	0.0	0.0	43	
	DAY 6	0.0	8.3	16.7	8.3	0.0	0.0	41.7	16.7	0.0	0.0	0.0	8.3	63	
	DAY 7	0.0	8.3	41.7	0.0	8.3	25.0	8.3	0.0	0.0	0.0	0.0	8.3	48	
TOTAL	DAY 1	8.3	36.7	13.3	6.7	1.7	5.0	5.0	10.0	1.7	0.0	6.7	5.0	47	60
	DAY 2	15.0	18.3	15.7	6.7	5.0	3.3	8.3	10.0	1.7	1.7	1.7	11.7	57	
	DAY 3	10.0	10.0	10.0	13.3	6.7	5.0	1.7	10.0	6.7	3.3	6.7	16.7	79	
	DAY 4	5.0	10.0	10.0	10.0	11.7	6.7	6.7	8.3	8.3	8.3	5.0	10.0	72	
	DAY 5	3.3	13.3	15.0	13.3	8.3	3.3	8.3	8.3	5.0	6.7	3.3	13.3	82	
	DAY 6	6.7	11.7	23.3	15.0	1.7	3.3	8.3	6.7	1.7	1.7	8.3	11.7	68	
	DAY 7	3.3	23.3	23.3	10.0	5.0	10.0	5.0	0.0	3.3	5.0	0.0	11.7	54	

TABLE 39. Year Vs Mean Ap and Flare Count for All Importance Flares.

		MEAN DAILY AP AND MAXIMUM 3-HOUR AP																		
		IMP 0			IMP 1			IMP 2			IMP 3			IMP 4			TOTAL		
YEAR	DAYS AFTER	DAY AP	3HR AP	FLARE COUNT	DAY AP	3HR AP	FLARE COUNT	DAY AP	3HR AP	FLARE COUNT	DAY AP	3HR AP	FLARE COUNT	DAY AP	3HR AP	FLARE COUNT	DAY AP	3HR AP	FLARE COUNT
BEGINNING	DAY 1	16	36	458	17	38	43	15	29	13	59	80	1	21	32	1	16	36	516
(1976-77)	DAY 2	17	36		18	39		20	42		45	80		10	22		17	36	
	DAY 3	15	33		21	41		32	64		69	154		4	9		16	34	
	DAY 4	17	37		21	42		20	41		39	111		9	27		17	38	
	DAY 5	18	39		14	29		20	43		24	48		14	32		18	38	
	DAY 6	17	37		15	29		21	46		10	15		18	32		17	37	
	DAY 7	17	35		12	26		17	31		8	15		18	27		16	34	
RISE	DAY 1	14	30	7830	14	29	1014	13	28	172	21	59	14	25	74	2	14	30	9032
(1978-80)	DAY 2	14	30		14	28		16	35		34	72		9	25		14	30	
	DAY 3	14	30		15	31		21	44		42	88		37	108		14	30	
	DAY 4	14	31		16	34		18	39		47	83		67	122		15	31	
	DAY 5	15	31		15	33		16	33		34	71		34	7[illegible]		15	32	
	DAY 6	14	30		15	32		16	32		25	49		81	123		14	30	
	DAY 7	14	29		14	29		15	31		18	46		21	67		14	29	
MAXIMUM	DAY 1	20	41	9946	19	40	1447	22	43	233	23	48	25	9	14	3	20	41	11654
(1980-82)	DAY 2	20	40		19	40		23	48		22	51		13	21		20	40	
	DAY 3	20	40		20	42		25	49		33	68		27	53		20	40	
	DAY 4	20	40		21	43		25	48		34	67		26	37		20	40	
	DAY 5	19	39		20	41		24	48		44	86		62	165		20	40	
	DAY 6	19	38		20	40		20	39		39	71		118	207		19	38	
	DAY 7	19	38		20	40		21	42		30	57		45	109		19	38	
FALL	DAY 1	19	37	4323	21	42	397	19	41	54	22	41	11	0	0	0	19	38	4785
(1983-84)	DAY 2	19	40		19	40		20	43		34	63		0	0		19	40	
	DAY 3	19	40		21	42		23	45		38	71		0	0		20	40	
	DAY 4	19	40		20	40		25	45		31	56		0	0		20	40	
	DAY 5	20	41		20	41		23	47		26	47		0	0		20	41	
	DAY 6	18	39		20	41		19	40		26	55		0	0		19	39	
	DAY 7	19	39		19	41		14	30		20	40		0	0		19	39	
END	DAY 1	16	33	1383	17	37	95	20	38	13	11	22	3	0	0		16	34	1494
(1984-86)	DAY 2	17	35		19	39		31	67		47	81		0	0		17	36	
	DAY 3	17	35		20	40		28	49		90	158		0	0		17	36	
	DAY 4	15	32		18	37		31	58		71	135		0	0		16	33	
	DAY 5	15	32		17	36		28	54		91	176		0	0		15	32	
	DAY 6	14	30		16	35		10	21		23	47		0	0		14	31	
	DAY 7	14	30		17	39		13	26		23	65		0	0		15	31	
TOTAL	DAY 1	18	36	23940	17	36	2996	18	37	485	22	49	54	16	37	6	18	36	27491
	DAY 2	18	36		17	36		20	43		29	61		11	23		18	37	
	DAY 3	18	36		18	38		23	47		40	80		26	64		18	37	
	DAY 4	18	36		19	39		22	45		39	73		37	64		18	37	
	DAY 5	18	36		18	38		21	43		40	79		45	113		18	37	
	DAY 6	17	35		18	37		18	36		31	59		89	150		17	35	
	DAY 7	17	35		19	36		18	36		24	50		33	81		17	35	

TABLE 40. Year Vs Daily Ap Distribution for 0 Importance Flares.

YEAR	DAYS AFTER	DAILY AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
BEGINNING (1976-77)	DAY 1	52.2	24.0	8.5	3.3	2.0	1.1	0.2	0.7	0.2	0.4	2.4	16	458
	DAY 2	53.3	28.4	6.6	3.1	2.2	2.0	0.7	0.7	0.2	0.2	2.8	17	
	DAY 3	56.6	27.3	7.0	2.2	1.7	2.0	0.7	0.2	0.0	0.0	2.4	15	
	DAY 4	52.6	26.0	7.6	4.1	3.7	2.4	0.7	0.2	0.0	0.0	2.6	17	
	DAY 5	52.4	22.9	11.8	4.1	2.8	1.3	0.2	0.2	0.4	0.0	3.7	18	
	DAY 6	49.6	26.9	11.8	3.5	3.1	0.4	1.3	0.7	0.4	0.0	2.4	17	
	DAY 7	52.8	23.4	12.9	3.5	3.3	0.7	0.4	0.0	0.4	0.7	2.0	17	
RISE (1978-80)	DAY 1	52.6	28.6	9.1	4.9	2.2	1.1	0.4	0.5	0.2	0.1	0.4	14	7930
	DAY 2	52.4	29.5	9.7	4.8	2.1	1.1	0.3	0.4	0.3	0.1	0.3	14	
	DAY 3	53.4	28.0	8.9	4.8	2.2	1.1	0.5	0.4	0.2	0.1	0.2	14	
	DAY 4	52.2	28.1	9.4	4.7	2.6	1.3	0.5	0.4	0.2	0.2	0.3	14	
	DAY 5	51.8	29.0	8.7	4.3	2.6	1.4	0.8	0.5	0.3	0.1	0.4	15	
	DAY 6	53.1	29.4	8.8	4.6	2.3	1.2	0.5	0.3	0.2	0.1	0.4	14	
	DAY 7	53.1	29.9	8.7	4.0	2.0	1.0	0.5	0.3	0.2	0.0	0.3	14	
MAXIMUM (1980-82)	DAY 1	36.0	31.9	14.8	7.4	4.3	2.1	1.2	0.8	0.2	0.4	1.0	20	9946
	DAY 2	34.9	32.9	15.2	7.7	3.9	2.2	0.8	0.6	0.2	0.4	1.1	20	
	DAY 3	36.4	32.3	14.3	7.4	4.0	2.3	0.9	0.6	0.2	0.5	1.1	20	
	DAY 4	35.0	33.3	14.7	7.6	4.2	1.9	0.9	0.8	0.3	0.5	0.9	20	
	DAY 5	35.4	32.9	15.1	7.8	4.1	1.8	1.0	0.7	0.2	0.3	0.7	19	
	DAY 6	35.1	32.7	16.3	7.3	4.2	1.9	0.8	0.6	0.2	0.2	0.5	19	
	DAY 7	35.2	34.3	16.2	6.2	3.9	1.7	0.7	0.8	0.2	0.3	0.7	19	
FALL (1983-84)	DAY 1	39.0	29.7	15.2	6.9	3.3	1.7	1.0	1.0	0.7	0.1	0.6	19	4323
	DAY 2	37.1	30.9	15.3	7.9	4.3	2.1	0.9	1.5	0.6	0.0	0.3	19	
	DAY 3	36.1	29.0	16.3	9.3	4.3	2.0	0.9	0.6	0.6	0.0	0.5	19	
	DAY 4	35.6	29.0	17.2	8.5	4.7	2.1	1.0	1.0	0.5	0.0	0.3	19	
	DAY 5	34.3	29.7	17.6	8.6	4.8	2.1	1.1	0.8	0.4	0.1	0.4	20	
	DAY 6	36.8	29.9	17.4	7.5	4.0	2.1	1.1	0.7	0.3	0.0	0.3	18	
	DAY 7	35.8	31.2	17.8	6.5	4.1	2.1	1.1	0.9	0.3	0.0	0.3	19	
END (1984-86)	DAY 1	50.9	29.2	9.6	5.1	2.2	0.6	0.4	0.5	0.2	0.1	1.0	16	1383
	DAY 2	48.3	27.5	11.6	6.0	2.5	1.5	0.7	0.2	0.2	0.2	1.2	17	
	DAY 3	47.6	31.1	9.9	5.7	2.0	0.7	0.8	0.3	0.2	0.1	1.5	17	
	DAY 4	51.8	28.6	9.0	4.7	2.5	0.9	1.0	0.3	0.1	0.4	0.6	15	
	DAY 5	48.8	32.5	9.5	4.2	2.2	1.5	0.5	0.1	0.1	0.1	0.6	15	
	DAY 6	49.9	30.8	9.5	4.3	2.7	1.4	0.6	0.4	0.1	0.0	0.1	14	
	DAY 7	48.3	32.2	11.1	3.0	2.1	1.7	0.9	0.4	0.1	0.0	0.2	14	
TOTAL	DAY 1	43.4	30.1	12.6	6.3	3.3	1.6	0.8	0.7	0.3	0.2	0.8	18	23940
	DAY 2	42.2	30.6	13.0	6.6	3.3	1.8	0.7	0.7	0.3	0.2	0.8	18	
	DAY 3	42.9	30.2	12.5	6.7	3.4	1.8	0.7	0.5	0.2	0.2	0.8	18	
	DAY 4	42.1	30.4	13.0	6.6	3.7	1.7	0.8	0.7	0.3	0.3	0.6	18	
	DAY 5	41.6	30.8	13.1	6.5	3.6	1.7	0.9	0.6	0.3	0.2	0.6	18	
	DAY 6	42.4	30.6	13.6	6.2	3.5	1.6	0.8	0.5	0.2	0.1	0.5	17	
	DAY 7	42.3	32.0	13.7	5.3	3.2	1.5	0.7	0.6	0.2	0.1	0.5	17	

TABLE 41. Year Vs Maximum 3-Hour ap Distribution for 0 Importance Flares.

YEAR	DAYS AFTER	MAXIMUM 3-HOUR AP: PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150	MEAN	FLARE COUNT
BEGINNING	DAY 1	15.7	31.7	20.7	11.6	6.8	1.3	2.0	2.4	1.1	0.9	0.9	5.0	36	458
(1976-77)	DAY 2	19.7	28.2	19.2	13.3	5.2	2.0	2.0	3.3	0.7	0.4	0.9	5.2	36	
	DAY 3	21.6	31.4	16.2	11.8	6.3	2.4	1.1	1.7	1.7	1.5	0.0	4.1	33	
	DAY 4	22.5	24.7	17.9	11.8	5.5	1.5	2.4	1.7	5.7	1.5	0.4	4.4	37	
	DAY 5	26.2	23.1	13.5	13.8	4.6	2.4	3.1	0.4	5.5	1.7	0.2	5.5	39	
	DAY 6	21.0	24.7	18.8	14.2	4.4	2.6	2.8	2.0	2.6	0.9	0.7	5.5	37	
	DAY 7	21.8	24.7	18.3	15.1	5.2	2.6	1.3	1.1	4.6	0.9	0.2	4.1	35	
RISE	DAY 1	22.6	23.9	16.7	13.4	4.1	3.1	3.9	1.4	1.6	1.1	1.3	2.1	30	7530
(1978-80)	DAY 2	22.3	22.3	15.7	13.8	4.8	3.1	3.9	1.4	1.8	1.1	0.8	2.0	30	
	DAY 3	22.6	23.4	16.6	13.3	4.2	2.8	4.0	1.5	1.5	1.2	0.9	1.9	30	
	DAY 4	21.5	23.2	17.6	13.8	4.4	3.4	3.9	1.4	1.4	1.3	0.8	2.2	31	
	DAY 5	21.4	28.5	17.3	13.7	4.0	3.3	3.5	1.6	1.7	1.0	1.5	2.4	31	
	DAY 6	21.7	23.7	16.7	13.9	4.1	2.8	3.7	1.6	1.5	1.2	1.3	1.8	30	
	DAY 7	21.1	30.3	17.9	13.8	4.3	2.7	3.1	1.6	1.6	1.0	1.0	1.6	29	
MAXIMUM	DAY 1	10.6	23.5	19.2	17.3	5.8	5.9	3.6	4.3	3.5	1.8	1.7	2.7	41	9946
(1980-82)	DAY 2	10.9	23.2	19.6	17.0	6.5	6.2	3.8	4.2	2.9	1.6	1.4	2.7	40	
	DAY 3	11.3	23.7	20.1	15.9	6.2	6.0	3.5	4.3	2.7	1.8	1.5	2.9	40	
	DAY 4	10.3	23.9	20.3	16.9	6.7	5.6	3.6	4.0	2.5	1.6	2.1	2.6	40	
	DAY 5	10.1	24.2	20.4	17.2	6.5	5.4	3.6	4.0	2.7	1.6	1.9	2.3	39	
	DAY 6	10.6	23.5	19.5	18.4	6.7	5.9	3.5	4.3	2.3	1.9	1.4	1.9	38	
	DAY 7	11.2	23.4	19.6	18.8	6.9	5.0	2.9	3.9	2.4	1.8	1.6	2.1	38	
FALL	DAY 1	11.9	25.7	17.2	16.8	6.2	6.9	4.0	5.0	2.0	0.7	0.8	2.9	37	4323
(1983-84)	DAY 2	11.5	24.1	15.7	18.3	6.3	6.5	4.5	6.0	2.3	0.5	0.9	3.5	40	
	DAY 3	10.7	23.2	16.4	16.3	6.9	7.3	5.7	7.0	2.3	0.4	0.6	3.2	40	
	DAY 4	11.2	22.7	16.0	18.9	5.7	6.7	4.9	6.4	3.0	0.5	0.5	3.4	40	
	DAY 5	11.1	21.4	17.3	17.8	5.2	7.1	5.9	6.5	3.2	0.4	0.5	3.6	41	
	DAY 6	10.9	24.1	17.8	17.2	5.8	6.6	5.2	5.5	2.8	0.5	0.4	3.3	39	
	DAY 7	10.5	23.6	18.6	18.2	6.0	5.5	5.0	5.4	3.2	0.4	0.2	3.5	39	
END	DAY 1	18.1	30.7	16.8	14.1	5.9	2.7	2.7	3.8	1.2	0.9	0.4	2.7	33	1383
(1984-86)	DAY 2	17.6	27.3	18.1	14.2	4.8	3.5	3.5	3.5	1.7	1.9	1.0	2.9	36	
	DAY 3	17.6	27.3	20.0	15.5	4.5	2.2	2.7	4.0	0.8	2.0	1.3	2.1	35	
	DAY 4	19.9	30.4	16.0	14.5	4.5	1.7	4.0	3.3	1.4	1.4	1.1	1.6	32	
	DAY 5	18.1	27.1	22.8	14.4	5.0	1.0	3.3	2.9	0.9	1.7	1.4	1.6	32	
	DAY 6	17.7	28.5	20.5	14.9	5.1	2.2	3.2	3.1	1.0	1.2	1.3	1.3	30	
	DAY 7	17.2	27.0	21.1	16.9	4.9	1.2	3.3	3.8	0.9	1.2	0.9	1.4	30	
TOTAL	DAY 1	15.3	26.2	17.9	15.6	5.4	4.9	3.7	3.4	2.4	1.3	1.3	2.6	36	23940
	DAY 2	15.3	25.7	17.5	16.0	5.8	5.0	3.9	3.5	2.3	1.2	1.1	2.7	36	
	DAY 3	15.5	25.8	18.2	15.1	5.6	4.9	4.0	3.8	2.1	1.4	1.1	2.6	36	
	DAY 4	14.9	25.5	18.4	16.0	5.6	4.8	3.9	3.5	2.3	1.3	1.3	2.6	36	
	DAY 5	14.8	25.3	18.8	15.9	5.3	4.7	4.0	3.6	2.4	1.2	1.4	2.6	36	
	DAY 6	14.9	25.9	18.3	16.4	5.6	4.7	3.9	3.5	2.0	1.4	1.2	2.1	35	
	DAY 7	14.9	25.9	19.0	16.9	5.8	4.1	3.4	3.4	2.2	1.2	1.1	2.2	35	

TABLE 42. Year Vs Daily Ap Distribution for 1 Importance Flares.

YEAR	DAYS AFTER	DAILY AP — PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
BEGINNING	DAY 1	51.2	23.3	11.6	11.6	0.0	0.0	0.0	0.0	0.0	0.0	2.3	17	43
(1976-77)	DAY 2	39.5	34.9	9.3	9.3	2.3	2.3	0.0	2.3	0.0	0.0	0.0	18	
	DAY 3	53.5	20.9	4.7	7.0	7.0	2.3	0.0	0.0	0.0	0.0	4.7	21	
	DAY 4	51.2	16.3	11.6	7.0	7.0	0.0	2.3	0.0	0.0	0.0	4.7	21	
	DAY 5	44.2	34.9	11.6	2.3	4.7	0.0	2.3	0.0	0.0	0.0	0.0	14	
	DAY 6	58.1	20.9	9.3	4.7	2.3	0.0	0.0	4.7	0.0	0.0	0.0	15	
	DAY 7	62.8	16.3	16.3	0.0	4.7	0.0	0.0	0.0	0.0	0.0	0.0	12	
RISE	DAY 1	54.2	30.6	7.2	3.4	2.1	0.8	0.4	0.4	0.2	0.3	0.5	14	1014
(1978-80)	DAY 2	55.5	26.2	9.1	4.6	2.5	0.7	0.6	0.2	0.2	0.2	0.2	14	
	DAY 3	51.9	28.2	10.6	3.4	2.9	1.3	0.7	0.5	0.2	0.0	0.5	15	
	DAY 4	51.4	26.5	8.5	5.8	4.0	1.7	0.6	0.4	0.6	0.3	0.2	16	
	DAY 5	49.0	29.1	11.2	4.9	2.2	1.9	0.7	0.5	0.1	0.0	0.4	15	
	DAY 6	52.4	30.8	6.5	3.8	2.6	1.1	0.6	1.0	0.4	0.2	0.7	15	
	DAY 7	56.8	28.9	7.4	3.9	2.5	1.0	0.7	0.0	0.4	0.0	0.4	14	
MAXIMUM	DAY 1	34.9	33.0	15.0	8.6	4.2	1.6	1.2	0.4	0.0	0.2	0.6	19	1447
(1980-82)	DAY 2	35.2	34.7	12.7	7.9	5.3	1.4	0.8	0.8	0.1	0.2	1.0	19	
	DAY 3	33.8	34.6	13.8	7.5	4.2	2.8	1.0	0.6	0.1	0.7	1.0	20	
	DAY 4	33.2	34.6	15.4	7.0	4.2	1.9	1.2	0.7	0.1	0.3	1.4	21	
	DAY 5	32.3	34.7	14.5	8.1	5.4	1.8	1.2	0.5	0.2	0.4	0.9	20	
	DAY 6	32.1	35.3	16.3	6.0	4.4	2.8	1.4	0.9	0.2	0.1	0.4	20	
	DAY 7	32.1	36.5	14.8	6.8	4.4	2.3	0.8	1.2	0.0	0.2	1.0	20	
FALL	DAY 1	38.5	26.7	16.9	6.3	4.3	2.8	0.5	0.8	2.3	0.3	0.8	21	397
(1983-84)	DAY 2	38.5	26.7	14.4	10.6	5.8	2.3	0.3	1.0	0.0	0.0	0.5	19	
	DAY 3	36.0	21.9	22.4	9.6	4.5	2.0	1.3	1.0	0.5	0.3	0.5	21	
	DAY 4	36.5	30.7	13.9	8.1	5.5	1.9	1.5	0.3	0.9	0.3	0.8	20	
	DAY 5	34.3	29.5	19.1	7.6	4.3	3.3	0.0	0.5	0.5	0.3	0.8	20	
	DAY 6	39.3	27.5	17.1	5.3	4.5	1.8	1.8	0.3	1.5	0.0	1.0	20	
	DAY 7	39.0	26.4	17.4	7.6	4.3	2.0	1.3	1.3	0.8	0.0	0.0	19	
END	DAY 1	43.2	35.8	11.6	5.3	1.1	0.0	1.1	0.0	0.0	0.0	2.1	17	95
(1984-86)	DAY 2	41.1	30.5	13.7	9.5	1.1	0.0	2.1	0.0	0.0	0.0	2.1	19	
	DAY 3	40.0	28.4	11.6	14.7	0.0	2.1	1.1	0.0	1.1	0.0	1.1	20	
	DAY 4	44.2	31.6	8.4	6.3	5.3	1.1	0.0	0.0	0.0	0.0	3.2	18	
	DAY 5	55.8	18.9	12.6	2.1	4.2	1.1	4.2	0.0	0.0	0.0	1.1	17	
	DAY 6	49.5	32.6	7.4	3.2	1.1	2.1	3.2	0.0	0.0	0.0	1.1	16	
	DAY 7	45.3	30.5	7.4	6.3	5.3	2.1	2.1	0.0	0.0	1.1	0.0	17	
TOTAL	DAY 1	42.4	31.3	12.4	6.4	3.3	1.5	0.8	0.4	0.4	0.2	0.7	17	2996
	DAY 2	42.8	30.6	11.7	7.2	4.2	1.2	0.7	0.6	0.1	0.2	0.7	17	
	DAY 3	40.7	30.4	13.7	6.6	3.7	2.1	0.9	0.6	0.2	0.4	0.8	18	
	DAY 4	40.4	31.0	12.6	6.7	4.4	1.8	1.0	0.5	0.4	0.3	1.0	19	
	DAY 5	39.1	31.6	13.9	6.7	4.1	2.0	1.0	0.6	0.2	0.2	0.7	18	
	DAY 6	40.9	32.4	12.7	5.1	3.7	2.0	1.2	0.9	0.4	0.1	0.6	18	
	DAY 7	41.6	32.1	12.4	5.9	3.7	1.8	0.8	0.8	0.2	0.1	0.6	18	

TABLE 43. Year Vs Maximum 3-Hour ap ribution for 1 Importance Flares.

YEAR	DAYS AFTER	MAXIMUM 3-HOUR AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150	MEAN	FLARE COUNT
BEGINNING	DAY 1	11.6	23.3	16.3	14.0	9.3	9.3	9.3	4.7	0.0	0.0	0.0	2.3	33	43
(1976-77)	DAY 2	7.0	32.6	16.3	9.3	9.3	2.3	9.3	4.7	4.7	0.0	2.3	2.3	39	
	DAY 3	16.3	25.6	27.9	4.7	0.0	2.3	4.7	7.0	4.7	2.3	0.0	4.7	41	
	DAY 4	27.9	16.3	16.3	7.0	9.3	0.0	7.0	2.3	7.0	0.0	0.0	7.0	42	
	DAY 5	32.6	14.0	23.3	14.0	2.3	2.3	4.7	0.0	0.0	7.0	0.0	0.0	29	
	DAY 6	30.2	32.6	7.0	9.3	9.3	4.7	0.0	0.0	2.3	0.0	0.0	4.7	29	
	DAY 7	27.9	25.6	18.6	7.0	9.3	2.3	2.3	0.0	7.0	0.0	0.0	0.0	26	
RISE	DAY 1	23.5	22.8	15.6	15.0	4.3	3.0	2.3	1.2	1.0	1.4	1.0	2.1	29	1014
(1978-80)	DAY 2	22.7	31.4	15.7	13.1	4.2	3.4	2.9	1.9	1.9	1.1	0.2	1.7	28	
	DAY 3	23.3	28.0	10.8	11.4	4.9	3.6	2.9	2.1	2.3	1.9	0.8	2.2	31	
	DAY 4	18.0	29.6	15.9	14.9	4.2	3.0	3.9	2.3	2.3	2.2	0.6	3.2	34	
	DAY 5	19.1	28.9	17.0	13.2	5.1	4.4	4.3	1.7	0.9	1.4	1.6	2.4	33	
	DAY 6	19.3	31.0	17.8	14.7	2.7	3.0	4.3	1.5	0.7	0.7	1.4	3.1	32	
	DAY 7	21.7	29.9	18.5	13.2	4.6	2.7	3.1	0.9	1.6	1.3	0.8	1.8	29	
MAXIMUM	DAY 1	11.4	23.3	17.6	17.8	5.7	6.7	4.3	4.4	3.2	1.9	2.0	1.9	40	1447
(1980-82)	DAY 2	10.3	23.2	21.7	16.2	5.7	6.2	3.3	3.9	3.2	2.4	1.6	2.3	40	
	DAY 3	9.4	23.8	20.2	16.7	5.9	5.7	4.5	4.5	3.1	2.3	1.2	2.8	42	
	DAY 4	7.7	24.6	19.3	19.4	6.5	5.8	3.2	4.4	2.6	1.6	1.7	3.2	43	
	DAY 5	8.8	22.3	22.5	15.5	7.9	4.9	3.2	4.6	3.1	2.8	2.5	1.9	41	
	DAY 6	9.2	22.7	18.9	19.9	7.7	4.7	2.8	4.2	3.2	2.8	2.1	1.7	40	
	DAY 7	8.1	24.9	21.4	17.9	5.9	5.5	2.9	3.7	2.6	1.9	2.9	2.3	40	
FALL	DAY 1	11.3	24.4	16.4	15.4	4.8	7.8	4.8	6.0	2.0	0.5	1.3	5.3	42	397
(1983-84)	DAY 2	12.1	24.2	15.4	14.1	4.3	7.6	8.3	3.3	2.3	0.5	0.8	2.3	40	
	DAY 3	13.9	19.6	11.3	15.9	8.1	8.1	8.6	7.8	2.3	0.8	0.5	3.3	42	
	DAY 4	11.3	22.2	17.9	18.9	5.5	5.3	5.0	6.8	2.8	0.0	0.0	4.3	40	
	DAY 5	8.8	22.4	17.4	17.4	5.8	9.3	5.0	6.8	2.8	0.3	0.8	3.3	41	
	DAY 6	9.3	26.2	19.6	14.4	9.1	5.3	3.0	4.3	2.3	0.5	0.5	5.5	41	
	DAY 7	8.6	24.9	18.6	16.9	5.8	5.3	4.3	7.1	3.5	0.3	1.0	4.3	41	
END	DAY 1	18.9	17.9	21.1	20.0	7.4	2.1	2.1	4.2	3.2	0.0	0.0	3.2	37	95
(1984-86)	DAY 2	16.8	23.2	16.8	11.6	10.5	7.4	4.2	4.2	1.1	0.0	2.1	2.1	39	
	DAY 3	12.6	28.4	13.7	14.7	6.3	4.2	0.3	6.3	2.1	2.1	1.1	2.1	40	
	DAY 4	15.8	31.6	12.8	16.8	2.1	3.2	5.3	1.1	4.2	4.2	0.0	3.2	37	
	DAY 5	23.2	31.6	10.5	11.6	8.4	1.1	2.1	2.1	0.0	3.2	3.2	3.2	36	
	DAY 6	13.7	29.5	20.0	13.7	6.3	0.0	4.2	6.3	1.1	1.1	2.1	2.1	35	
	DAY 7	23.2	17.9	18.9	10.5	7.4	1.1	8.4	4.2	1.1	1.1	0.0	6.3	39	
TOTAL	DAY 1	15.7	25.5	16.8	16.5	5.2	5.5	3.7	3.5	2.2	1.4	1.5	2.5	36	2996
	DAY 2	14.9	26.2	19.6	14.6	5.2	5.4	3.9	3.8	2.5	1.6	1.0	2.1	36	
	DAY 3	14.9	24.8	17.8	14.6	5.8	5.2	4.5	4.2	2.7	1.9	0.9	2.6	38	
	DAY 4	12.2	26.1	17.7	17.6	5.5	4.6	3.8	3.9	2.6	1.6	1.0	3.4	39	
	DAY 5	13.1	24.7	19.6	14.9	6.6	5.2	3.8	3.8	2.2	2.0	1.9	2.3	38	
	DAY 6	13.1	26.3	18.5	17.1	6.2	4.0	3.4	3.3	2.1	1.7	1.6	2.7	37	
	DAY 7	13.5	26.4	19.9	15.8	5.6	4.3	3.3	3.2	2.4	1.4	1.7	2.5	36	

TABLE 44. Year Vs Daily Ap Distribution for 2 Importance Flares.

YEAR	DAYS AFTER	DAILY AP — PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
BEGINNING	DAY 1	69.2	7.7	15.4	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	15	13
(1976-77)	DAY 2	30.5	30.8	0.0	15.4	15.4	0.0	0.0	0.0	0.0	0.0	0.0	20	
	DAY 3	30.8	23.1	7.7	7.7	15.4	0.0	7.7	0.0	0.0	0.0	7.7	32	
	DAY 4	30.8	38.5	7.7	7.7	15.4	0.0	0.0	0.0	0.0	0.0	0.0	20	
	DAY 5	38.5	30.8	15.4	0.0	7.7	0.0	0.0	7.7	0.0	0.0	0.0	20	
	DAY 6	53.8	15.4	7.7	0.0	15.4	0.0	0.0	7.7	0.0	0.0	0.0	21	
	DAY 7	53.8	7.7	30.8	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	17	
RISE	DAY 1	62.2	23.8	5.8	2.9	2.3	1.7	0.6	0.0	0.0	0.0	0.6	13	172
(1978-80)	DAY 2	45.9	32.0	12.2	4.1	1.7	1.7	1.2	0.0	0.0	0.0	0.6	16	
	DAY 3	44.8	19.8	12.2	9.3	5.2	4.1	0.0	1.2	0.0	1.7	1.7	21	
	DAY 4	43.6	25.6	14.5	4.1	5.2	4.7	0.6	1.2	0.0	0.6	0.0	18	
	DAY 5	42.4	34.9	11.0	5.8	2.3	2.3	0.0	0.6	0.0	0.0	0.6	16	
	DAY 6	45.3	34.3	9.3	4.1	2.3	2.9	0.6	0.6	0.0	0.0	0.6	16	
	DAY 7	49.4	30.8	5.8	7.6	4.1	0.6	0.6	1.2	0.0	0.0	0.0	15	
MAXIMUM	DAY 1	30.9	30.5	16.7	10.3	7.3	0.9	1.7	0.4	0.0	0.0	1.3	22	233
(1980-82)	DAY 2	31.3	29.6	15.0	12.9	4.3	2.1	2.6	0.4	0.4	0.4	0.9	23	
	DAY 3	25.3	33.9	14.6	10.7	7.7	2.6	1.7	1.3	0.9	0.0	1.3	25	
	DAY 4	25.8	33.0	15.5	11.2	5.2	3.0	1.7	2.1	0.4	0.4	1.7	25	
	DAY 5	27.5	33.5	17.2	9.2	6.4	2.1	1.7	0.4	0.4	0.9	1.7	24	
	DAY 6	31.3	34.3	14.6	7.3	8.2	1.7	2.1	0.4	0.0	0.0	0.0	20	
	DAY 7	32.2	33.9	12.9	9.4	4.7	2.6	3.0	0.9	0.0	0.0	0.4	21	
FALL	DAY 1	40.7	31.5	9.3	5.6	3.7	1.9	1.9	1.9	3.7	0.0	0.0	19	54
(1983-84)	DAY 2	40.7	25.9	11.1	13.0	5.6	0.0	0.0	0.0	0.0	0.0	3.7	20	
	DAY 3	27.8	22.8	27.8	7.4	1.9	0.0	3.7	0.0	0.0	1.9	1.9	23	
	DAY 4	24.1	31.5	20.4	5.6	7.4	7.4	0.0	0.0	0.0	0.0	3.7	25	
	DAY 5	22.2	33.3	25.9	5.6	7.4	0.0	0.0	3.7	0.0	1.9	0.0	23	
	DAY 6	42.6	31.5	9.3	7.4	1.9	1.9	1.9	1.9	0.0	0.0	1.9	19	
	DAY 7	51.9	25.9	13.0	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	
END	DAY 1	38.5	53.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	20	13
(1984-86)	DAY 2	30.8	30.8	23.1	7.7	0.0	0.0	0.0	0.0	0.0	0.0	7.7	31	
	DAY 3	38.5	23.1	7.7	23.1	0.0	0.0	0.0	0.0	0.0	0.0	7.7	28	
	DAY 4	26.9	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.4	31	
	DAY 5	69.2	0.0	15.4	7.7	0.0	0.0	0.0	0.0	0.0	0.0	7.7	28	
	DAY 6	69.2	23.1	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0	10	
	DAY 7	53.9	30.8	7.7	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	13	
TOTAL	DAY 1	44.3	28.2	11.5	6.6	4.7	1.4	1.2	0.4	0.4	0.0	1.0	18	485
	DAY 2	37.7	32.1	13.4	9.7	3.7	1.6	1.6	0.2	0.4	0.2	1.2	20	
	DAY 3	33.0	27.6	14.8	10.1	6.2	2.7	1.4	1.0	0.4	0.8	1.9	23	
	DAY 4	33.4	29.2	15.1	7.6	5.6	3.9	1.0	1.4	0.2	0.4	1.6	22	
	DAY 5	33.6	33.0	15.9	6.8	4.9	1.9	0.5	1.0	0.2	0.6	1.2	21	
	DAY 6	39.2	33.2	11.5	5.8	5.6	2.1	1.4	0.8	0.0	0.0	0.4	18	
	DAY 7	41.6	31.1	10.7	8.2	3.7	1.9	1.6	0.8	0.0	0.0	0.2	18	

TABLE 45. Year Vs Maximum 3-Hour ap Distribution for 2 Importance Flares.

YEAR	DAYS AFTER	MAXIMUM 3-HOUR AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150	MEAN	FLARE COUNT
BEGINNING	DAY 1	7.7	30.8	30.8	7.7	7.7	7.7	0.0	7.7	0.0	0.0	0.0	0.0	29	13
(1976-77)	DAY 2	7.7	30.8	30.8	0.0	0.0	0.0	0.0	15.4	7.7	0.0	7.7	0.0	42	
	DAY 3	0.0	23.1	15.4	15.4	7.7	0.0	7.7	7.7	7.7	0.0	0.0	15.4	64	
	DAY 4	7.7	7.7	38.5	15.4	7.7	0.0	7.7	0.0	0.0	15.4	0.0	0.0	41	
	DAY 5	0.0	38.5	15.4	15.4	7.7	7.7	0.0	0.0	0.0	7.7	0.0	7.7	43	
	DAY 6	15.4	38.5	0.0	7.7	7.7	0.0	0.0	7.7	15.4	0.0	0.0	7.7	46	
	DAY 7	15.4	23.1	23.1	0.0	30.8	0.0	0.0	7.7	0.0	0.0	0.0	0.0	31	
RISE	DAY 1	25.0	36.6	12.8	9.9	5.2	1.2	0.6	1.2	2.3	2.9	1.2	1.2	28	172
(1978-80)	DAY 2	16.9	27.3	15.7	13.0	4.1	5.2	3.5	1.7	1.7	1.2	1.2	3.5	35	
	DAY 3	20.3	23.3	12.2	9.3	5.8	3.5	6.4	4.1	4.7	2.9	2.3	5.2	44	
	DAY 4	22.7	20.9	10.5	19.8	4.7	4.1	3.5	1.7	4.1	2.9	0.6	4.7	39	
	DAY 5	11.0	27.3	22.1	15.1	7.6	5.8	4.1	1.7	2.3	0.6	0.0	2.3	33	
	DAY 6	15.7	28.5	25.0	12.2	5.2	1.7	5.2	0.6	0.6	1.2	1.7	2.3	32	
	DAY 7	20.3	26.7	19.8	13.4	3.5	2.3	7.6	1.2	2.3	0.6	0.6	1.7	31	
MAXIMUM	DAY 1	6.9	23.2	16.3	19.3	7.3	5.6	6.0	5.6	4.7	1.7	1.7	1.7	43	233
(1980-82)	DAY 2	7.3	20.2	22.7	12.4	5.6	7.7	5.6	6.0	3.4	2.1	3.4	3.4	48	
	DAY 3	6.9	19.3	18.5	17.6	6.0	6.9	4.7	6.0	2.1	5.2	3.9	3.0	49	
	DAY 4	6.4	18.0	19.7	15.9	11.2	5.6	3.4	6.0	4.3	2.1	2.6	4.7	48	
	DAY 5	5.2	20.2	23.6	15.9	6.4	6.0	6.0	4.3	2.6	3.0	2.6	4.3	48	
	DAY 6	7.7	23.6	19.7	18.9	6.9	6.9	1.7	5.6	1.7	3.4	2.6	1.3	39	
	DAY 7	9.4	22.7	18.9	16.7	6.0	6.9	3.4	3.4	3.4	3.9	1.7	3.4	42	
FALL	DAY 1	16.7	24.1	14.8	22.2	0.0	3.7	1.9	7.4	0.0	0.0	3.7	5.6	41	54
(1983-84)	DAY 2	14.8	22.2	11.1	16.7	3.7	5.6	3.7	16.7	1.9	0.0	0.0	3.7	43	
	DAY 3	5.6	18.5	14.8	29.6	1.9	14.8	1.9	3.7	0.0	1.9	0.0	7.4	45	
	DAY 4	7.4	13.5	14.8	25.9	5.6	3.7	3.7	11.1	5.6	0.0	0.0	3.7	45	
	DAY 5	9.3	13.0	9.3	18.5	13.0	11.1	13.0	7.4	0.0	1.9	0.0	3.7	47	
	DAY 6	11.1	16.7	31.5	14.8	7.4	0.0	9.3	0.0	3.7	0.0	0.0	5.6	40	
	DAY 7	13.0	38.9	11.1	16.7	5.6	5.6	1.9	5.6	0.0	0.0	0.0	1.9	30	
END	DAY 1	15.4	7.7	23.1	46.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	38	13
(1984-86)	DAY 2	7.7	15.4	30.8	7.7	0.0	0.0	15.4	7.7	7.7	0.0	0.0	7.7	67	
	DAY 3	15.4	23.1	15.4	7.7	0.0	0.0	23.1	0.0	7.7	0.0	0.0	7.7	49	
	DAY 4	23.1	38.5	23.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.4	59	
	DAY 5	7.7	61.5	0.0	7.7	7.7	0.0	0.0	0.0	7.7	0.0	0.0	7.7	54	
	DAY 6	30.8	38.5	7.7	15.4	0.0	0.0	0.0	0.0	7.7	0.0	0.0	0.0	21	
	DAY 7	7.7	46.2	7.7	30.8	0.0	0.0	0.0	7.7	0.0	0.0	0.0	0.0	26	
TOTAL	DAY 1	14.6	27.8	15.5	16.7	5.6	3.7	3.3	4.1	3.1	1.9	1.6	2.1	37	485
	DAY 2	11.5	23.1	19.4	14.4	4.5	6.2	4.7	6.0	2.9	1.4	2.3	3.5	43	
	DAY 3	11.5	20.8	15.7	15.7	5.4	6.2	5.6	4.9	3.1	3.7	2.7	4.7	47	
	DAY 4	12.8	19.4	16.5	17.9	7.8	4.5	3.5	4.7	4.1	2.5	1.4	4.7	45	
	DAY 5	7.6	23.5	20.6	15.7	7.6	6.4	5.8	3.5	2.3	2.1	1.2	3.7	43	
	DAY 6	11.8	25.4	22.1	15.7	6.2	3.9	3.7	3.1	2.1	2.1	1.9	2.3	36	
	DAY 7	13.8	26.6	18.1	15.5	5.6	4.7	4.5	3.1	2.5	2.1	1.0	2.5	36	

TABLE 46. Year Vs Daily Ap Distribution for 3 or 4 Importance Flares.

YEAR	DAYS AFTER	DAILY AP: PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	MEAN	FLARE COUNT
BEGINNING	DAY 1	0.0	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	40	2
(1976-77)	DAY 2	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	28	
	DAY 3	50.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	37	
	DAY 4	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	
	DAY 5	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	
	DAY 6	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	
	DAY 7	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	
RISE	DAY 1	56.3	18.8	0.0	0.0	6.3	6.3	6.3	6.3	0.0	0.0	0.0	22	16
(1978-80)	DAY 2	25.0	37.5	18.8	0.0	0.0	6.3	0.0	0.0	0.0	0.0	12.5	31	
	DAY 3	25.0	12.5	6.3	12.5	6.3	12.5	12.5	0.0	0.0	6.3	6.3	41	
	DAY 4	31.3	12.5	6.3	6.3	6.3	6.3	6.3	0.0	0.0	0.0	25.0	50	
	DAY 5	18.8	31.3	12.5	0.0	6.3	25.0	0.0	0.0	0.0	0.0	6.3	34	
	DAY 6	37.5	31.3	0.0	12.5	0.0	0.0	0.0	6.3	0.0	0.0	12.5	32	
	DAY 7	43.8	25.0	18.8	6.3	0.0	0.0	0.0	6.3	0.0	0.0	0.0	19	
MAXIMUM	DAY 1	39.3	25.0	7.1	14.3	7.1	0.0	3.6	3.6	0.0	0.0	0.0	21	28
(1980-82)	DAY 2	32.1	28.6	3.6	21.4	10.7	0.0	3.6	0.0	0.0	0.0	0.0	21	
	DAY 3	14.3	21.4	21.4	17.9	14.3	0.0	7.1	0.0	0.0	0.0	3.6	32	
	DAY 4	3.6	14.3	17.9	39.3	10.7	14.3	0.0	0.0	0.0	0.0	0.0	33	
	DAY 5	10.7	17.9	25.0	7.1	14.3	7.1	0.0	0.0	10.7	0.0	7.1	46	
	DAY 6	10.7	32.1	7.1	7.1	10.7	7.1	0.0	7.1	0.0	7.1	10.7	48	
	DAY 7	28.6	21.4	14.3	10.7	3.6	0.0	17.9	0.0	0.0	0.0	3.6	31	
FALL	DAY 1	45.5	9.1	9.1	18.2	9.1	9.1	0.0	0.0	0.0	0.0	0.0	22	11
(1983-84)	DAY 2	45.5	0.0	9.1	18.2	9.1	0.0	0.0	0.0	0.0	0.0	18.2	34	
	DAY 3	27.3	18.2	27.3	0.0	0.0	0.0	0.0	9.1	0.0	0.0	18.2	39	
	DAY 4	18.2	27.3	9.1	9.1	9.1	18.2	9.1	0.0	0.0	0.0	0.0	31	
	DAY 5	18.2	36.4	9.1	0.0	36.4	0.0	0.0	0.0	0.0	0.0	0.0	26	
	DAY 6	27.3	18.2	18.2	18.2	9.1	0.0	9.1	0.0	0.0	0.0	0.0	26	
	DAY 7	27.3	27.3	36.4	0.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0	20	
END	DAY 1	33.3	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	3
(1984-86)	DAY 2	33.3	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	47	
	DAY 3	0.0	33.3	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	90	
	DAY 4	0.0	0.0	0.0	0.0	33.3	33.3	0.0	0.0	0.0	0.0	33.3	71	
	DAY 5	33.3	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	33.3	91	
	DAY 6	33.3	0.0	33.3	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	23	
	DAY 7	33.3	33.3	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	23	
TOTAL	DAY 1	43.3	21.7	6.7	10.0	6.7	5.0	3.3	3.3	0.0	0.0	0.0	22	60
	DAY 2	33.3	23.3	10.0	13.3	8.3	1.7	1.7	0.0	0.0	0.0	8.3	28	
	DAY 3	20.0	18.3	18.3	11.7	8.3	3.3	8.3	1.7	0.0	1.7	8.3	39	
	DAY 4	15.0	15.0	11.7	23.3	10.0	13.3	3.3	0.0	0.0	0.0	8.3	39	
	DAY 5	15.0	25.0	13.3	5.0	15.0	10.0	0.0	0.0	5.0	0.0	6.7	40	
	DAY 6	23.3	23.3	8.3	10.0	8.3	3.3	1.7	5.0	0.0	3.3	8.3	37	
	DAY 7	33.3	25.0	18.3	6.7	5.0	0.0	8.3	1.7	0.0	0.0	1.7	25	

TABLE 47. Year Vs Maximum 3-Hour ap Distribution for 3 or 4 Importance Flares.

YEAR	DAYS AFTER	MAXIMUM 3-HOUR AP PERCENT FREQUENCY OF OCCURRENCE 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-90	91-110	111-130	131-150	>150	MEAN	FLARE COUNT
BEGINNING	DAY 1	0.0	0.0	0.0	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	56	2
(1976-77)	DAY 2	0.0	0.0	50.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	51	
	DAY 3	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	82	
	DAY 4	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	69	
	DAY 5	0.0	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40	
	DAY 6	0.0	50.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	
	DAY 7	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	
RISE	DAY 1	6.3	50.0	12.5	0.0	6.3	0.0	0.0	0.0	0.0	0.0	6.3	18.8	61	16
(1978-80)	DAY 2	6.3	18.8	12.5	18.8	12.5	6.3	6.3	0.0	0.0	0.0	0.0	18.8	67	
	DAY 3	18.8	6.3	6.3	6.3	6.3	0.0	0.0	12.5	6.3	6.3	6.3	25.0	90	
	DAY 4	18.8	18.8	0.0	12.5	0.0	0.0	12.5	0.0	0.0	6.3	0.0	31.3	88	
	DAY 5	0.0	12.5	25.0	12.5	6.3	0.0	0.0	0.0	12.5	6.3	12.5	12.5	72	
	DAY 6	0.0	25.0	37.5	6.3	0.0	0.0	12.5	0.0	0.0	0.0	0.0	18.8	58	
	DAY 7	0.0	25.0	37.5	12.5	0.0	0.0	6.3	0.0	0.0	12.5	0.0	6.3	48	
MAXIMUM	DAY 1	7.1	35.7	14.3	7.1	0.0	3.6	10.7	7.1	3.6	0.0	10.7	0.0	44	28
(1980-82)	DAY 2	21.4	14.3	25.0	0.0	0.0	3.6	7.1	14.3	3.6	3.6	3.6	3.6	48	
	DAY 3	7.1	7.1	7.1	25.0	3.6	7.1	3.6	10.7	10.7	3.6	10.7	3.6	66	
	DAY 4	0.0	7.1	7.1	10.7	25.0	7.1	7.1	7.1	14.3	10.7	3.6	0.0	63	
	DAY 5	3.6	14.3	10.7	10.7	7.1	7.1	10.7	7.1	3.6	7.1	0.0	17.9	95	
	DAY 6	7.1	3.6	25.0	10.7	3.6	7.1	0.0	10.7	0.0	3.6	17.9	10.7	85	
	DAY 7	7.1	17.9	14.3	7.1	7.1	17.9	3.6	0.0	3.6	3.6	0.0	17.9	63	
FALL	DAY 1	9.1	36.4	9.1	0.0	0.0	18.2	0.0	27.3	0.0	0.0	0.0	0.0	41	11
(1983-84)	DAY 2	18.2	27.3	0.0	9.1	0.0	0.0	18.2	9.1	0.0	0.0	0.0	18.2	63	
	DAY 3	0.0	27.3	18.2	0.0	9.1	9.1	0.0	9.1	0.0	0.0	0.0	27.3	71	
	DAY 4	0.0	9.1	27.3	9.1	0.0	18.2	0.0	27.3	0.0	0.0	9.1	0.0	56	
	DAY 5	9.1	9.1	18.2	18.2	0.0	0.0	18.2	27.3	0.0	0.0	0.0	0.0	47	
	DAY 6	9.1	9.1	9.1	27.3	0.0	0.0	27.3	9.1	0.0	0.0	0.0	9.1	55	
	DAY 7	0.0	27.3	18.2	18.2	9.1	9.1	9.1	0.0	9.1	0.0	0.0	0.0	40	
END	DAY 1	33.3	0.0	33.3	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	3
(1984-86)	DAY 2	0.0	33.3	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	33.3	81	
	DAY 3	0.0	0.0	33.3	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	33.3	158	
	DAY 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	33.3	33.3	135	
	DAY 5	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	33.3	176	
	DAY 6	33.3	0.0	0.0	33.3	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	47	
	DAY 7	0.0	33.3	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	65	
TOTAL	DAY 1	8.3	36.7	13.3	6.7	1.7	5.0	5.0	10.0	1.7	0.0	6.7	5.0	47	60
	DAY 2	15.0	18.3	16.7	6.7	5.0	3.3	8.3	10.0	1.7	1.7	1.7	11.7	57	
	DAY 3	10.0	10.0	10.0	13.3	6.7	5.0	1.7	10.0	6.7	3.3	6.7	16.7	79	
	DAY 4	5.0	10.0	10.0	10.0	11.7	6.7	6.7	8.3	8.3	8.3	5.0	10.0	72	
	DAY 5	3.3	13.3	15.0	13.3	6.7	3.3	8.3	8.3	5.0	6.7	3.3	13.3	82	
	DAY 6	6.7	11.7	23.3	15.0	1.7	3.3	8.3	6.7	1.7	1.7	8.3	11.7	68	
	DAY 7	3.3	23.3	23.3	10.0	5.0	10.0	5.0	0.0	3.3	5.0	0.0	11.7	54	

DISTRIBUTION

AWS/XT, Scott AFB, IL 62225-5008 1
AWS/DO, Scott AFB, IL 62225-5008 1
AWS/PM, Scott AFB, IL 62225-5008 1
OL A, HQ AWS, Buckley ANG Base, Aurora, CO 80011-9599 1
AFOTEC/WE, Kirtland AFB, NM 87117-7001 1
CACDA, OL-E, HQ AWS, ATZL-CAW-E, Ft Leavenworth, KS 66027-5300 1
SDACWDA, PO Box 92960, Los Angeles, CA 90009-2960 1
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OL-I, HQ AWS (ATWE), Ft Monroe, VA 23651-5051 1
OL-K, HQ AWS, NEXRAD Opnl Facility, 1200 Westheimer Dr., Norman, OK 73069 1
OL-M, HQ AWS, McClellan AFB, CA 95652-5609 1
Det 1, HQ AWS, Pentagon, Washington, DC 20330-6560 1
Det 2, HQ AWS, Pentagon, Washington, DC 20330-5054 1
Det 3, HQ AWS, PO Box 3430, Onizuka AFB, CA 94088-3430 1
Det 8, HQ AWS, PO Box 4239, N Las Vegas, NV 89030 1
Det 9, HQ AWS, PO Box 12297, Las Vegas, NV 89112-0297 1
1WW/DN, Hickam AFB, HI 96853-5000 1
20WS/DON, APO San Francisco 96328-5000 1
30WS/DON, APO San Francisco 96301-0420 1
2WW/DN, APO New York 09094-5000 1
7WS/DON, APO New York 09403-5000 1
28WS/DON, APO New York 09127-5000 1
31WS/DON, APO New York 09136-5000 1
3WW/DN, Offutt AFB, NE 68113-5000 1
9WS/DON, March AFB, CA 92518-5000 1
11WS/DON, Elmendorf AFB, AK 99506-5000 1
24WS/DON, Randolph AFB, TX 78150-5000 1
26WS/DON, Barksdale AFB, LA 71110-5002 1
4WW/DN, Peterson AFB, CO 80914-5000 5
Det 1, 4WW, Falcon AFB, CO 80912-5000 1
Det 2, 4WW, PO Box 2517, So Hamilton, MA 01982-0517 1
Det 3, 4WW, PO Box 261, Ramey, PR 00604-0261 1
Det 4, 4WW, Holloman AFB, NM 88330-5000 1
Det 5, 4WW, Hickam AFB, HI, 96853-5000 1
Det 7, 4WW, Falcon AFB, CO, 80912-5000 1
Det 8, 4WW, APO New York, 09240-5000 1
2WS/DON, Andrews AFB, MD 20334-5000 15
5WW/DN, Langley AFB, VA 23665-5000 1
1WS/DON MacDill AFB, FL 33608-5000 1
3WS/DON, Shaw AFB, SC 29152-5000 1
5WS/DON, Ft McPherson, GA 30330-5000 1
25WS/DON, Bergstrom AFB, TX 78743-5000 1
AFGWC/DO, Offutt AFB, NE 68113-5000 1
AFGWC/WSE, Offutt AFB, NE 68113-5000 6
AFGWC/SDSL, Offutt AFB, NE 68113-5000 2
USAFETAC, Scott AFB, IL 62225-5438 6
7WW/DN, Scott AFB, IL 62225-5008 1
6WS/DON Hurlburt Field, FL 32544-5000 1
15WS/DON, McGuire AFB, NJ 08641-5002 1
17WS/DON, Travis AFB, CA 94535-5986 1

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